LISBON SCHOOL OF ECONOMICS & MANAGEMENT
UNIVERSIDADE DE LISBOA

MASTER IN FINANCE

MASTER FINAL WORK

DISSERTATION

FINANCIAL PERFORMANCE IN PORTUGUESE CREATIVE INDUSTRIES AND MACROECONOMIC FLUCTUATIONS: A FIRM-BASED ANALYSIS (2004-2011)

AUTHOR: MARIANA SERRAS CELORICO DA SILVA FIALHO

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Abstract

The present study assesses the financial performance of the Portuguese Creative Industries and their contribution to the development of the global and local economy and job creation. After the presentation and discussions of the significant literature, the empirical hypothesis were tested based on SCIE microdata for the period of 2004-2011 which covers a large number of firms during this period (N=19,464).

The empirical results suggest that the performance of the firms that belongs to the Cultural and Creative Industries are allied to the macroeconomic context which influences their appearance as well the firm's survival. Indeed, these firms tend to develop their activities on favorable periods, otherwise they slow down and in extreme cases they declared the end of their activities (death). Besides of the effects of the business cycle, the access to finance also impact the financial performance of these firms. As being mostly micro-enterprises these firms are subject to financial dependence to develop their activities. We also found that Portuguese Cultural and Creative Industries has an important role on the economy growth and job creation, which justifies the European policy makers and national governments attention. In a regional perspective, the firms of Cultural and Creative Industries have a clear tendency to locate near to the large urban zones (Lisbon Metropolitan Area and North) benefiting from the urbanized economies.

Keywords: Cultural and Creative Industries; macroeconomic context; survival analysis; government subsidies; financial performance.
JEL Codes: Z11; L25; D22; E32.

Resumo

O presente estudo investiga o desempenho financeiro das Indústrias Criativas portuguesas e o seu contribuito para o desenvolvimento global e local da economia bem como a criação de emprego. Após a apresentação e discussão da literatura relevante, foram testadas hipóteses empíricas com base nos microdados SCIE para o período de 2004-2011, abrangendo um elevado número de empresas durante este período (N=19.464).

Os resultados empíricos sugerem que o desempenho destas empresas estão relacionados com o contexto macroeconómico que, por sua vez, influencia tanto o aparecimento como a sobrevivência das mesmas. De facto, estas empresas desenvolvem as suas actividades nos períodos mais favoráveis, sendo que, em caso contrário tendem a diminuir as a suas actividades atingindo, por vezes, situações extremas (encerram). Para além dos efeitos do ciclo macroeconómico, o acesso ao financiamento também tem impacto no seu desempenho financeiro. Sendo a sua maioria microempresas, estas estão sujeitas a uma grande dependência financeira para desenvolver as suas atividades. Podemos também constatar que estas empresas têm um papel importante no crescimento da economia e na criação de emprego, justificando a atenção dos *European policy makers* e dos respectivos governos nacionais. Numa perspectiva regional, estas empresas tendem a concentrarem-se perto das grandes zonas urbanas (Área Metropolitana de Lisboa e Norte), beneficiando das economias urbanizadas.

Palavras-chave: Indústrias Culturais e Criativas; Contexto Macroeconómico; Análise de Sobrevivência; Subsídios Governamentais; Desempenho Financeiro.
JEL codes: Z11; L25; D22; E32.

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Acronyms

CAE – *Classificação das Actividades Económicas*

CCI – Cultural and Creative Industries

DCMS – Department of Culture, Media and Sports

ESSnet-Culture – European Statistical System Network on Culture

GDP – Gross Domestic Product

GVA – Gross Value Added

KEA – KEA European Affairs

OCDE – *Organização para a Cooperação e Desenvolvimento Económico*

OECD – Organization for Economic Cooperation and Development

SCIE – *Sistema de Contas Integradas das Empresas*

SIC – Standard Industrial Classification

UNCTAD – United Nations Conference on Trade and Development

UNESCO – United Nations Educational, Scientific and Cultural Organization

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Introduction

The creative and cultural industries are a fairly under-researched sector (Chaston & Sadler-Smith, 2012) nevertheless since the beginning of the 2000s there were a growing consideration by the European policy makers due to the positive economic development of this sector (European Commission, 2013; Mateus, 2013 and 2010).

The Cultural and Creative Industries (CCI) present specific characteristics related to: (i) their intrinsic features (e.g. high weight of *intangible assets*, extremely *dependent on internal demand*); (ii) business composition (e.g. firm's size, *high dependence on public funding, shortage of business managerial skills*; and (iii) market conditions (e.g. small market size, *specific location*) (European Commission, 2013). Some of these features impact negatively on the access to finance, being the size dimension the principal barrier (Beck & Demirguc-Kunt, 2006) and information asymmetry the main reason of this problem (European Commission, 2013).

In 2010, over all the EU-27 countries the cultural and creative sector employed roughly 3.2 million individuals in practically 1 million firms, generating a total turnover of 402 billion euros which represents 4.4% of the total number of firms, 2.2% of employees (excluding financial and insurance activities) and 1.7% of turnover of the total business economy (European Commission, 2013). In a recent report, INE (2015) achieved similar conclusions regarding to the quantitative and qualitative important role of this sector in Portugal during the triennium 2010-2012. It represents, respectively, 2.0% and 1.7% of the employment and gross value added of total Portuguese economy (INE, 2015) but its influence goes beyond these percentages, because it contributes to the innovation and growth of the economy, the regional development and the wellbeing and human capital of the population.

The present research follows as key definition and composition of the cultural sector the adopted in the EC report *ESSnet-Culture Final Report* (Bina et al., 2012) which defines cultural activities as "all types of activities based on cultural values and/or artistic expressions", which includes "market- or non-market-orientated activities, with or without a commercial meaning and carried out by any type of producers and structure (individuals, organizations, business, groups, amateurs or professionals)" (Bina et al., 2012 – pp. 57). Delimitation and classification of this sector is still a matter with a lack of consensus (Cruz & Teixeira, 2015), despite of the effort to conciliate distinct definitions (Flew & Cunningham, 2010).

The main areas of research of CCI are: the delimitation and classification of the sector (Bina et al., 2012; European Cultural Foundation, 2006; KEA European Affairs, 2006; DCMS, 1998, 2007, 2009; UNCTAD, 2004, 2008); the study of its contribution for local and regional development (Potts, & Cunningham, 2008); or employment creation (Cruz & Teixeira, 2015); and the design of public policies to develop the sector (Mateus, 2013 & 2010; European Commission, 2013; Potts & Cunningham, 2008). There is also several studies about CCI in countries or regions like United Kingdom (Higgs, Cunningham & Bakhshi, 2008; White, 2009), Sweden (Power, 2014), Netherlands (Hennekam & Weber 2015) and over all European Union (Boix et al. 2011, 2014, European Commission, 2013). For Portugal, recently INE (2015) developed several statistics related to this sector (INE, 2015). There is a seminal empirical research of this sector developed by Mateus. (2010) followed by Mateus (2013) which stress the upgrading of the public policies designed and the relevance of the sector as a booster tool to increase the Portuguese economy. Also, Cruz, S. and Teixeira, A. (2014, 2015) studied the determinants of the location choices of these type of firms in Portugal and critically

appraise different definitions of this sector by using the employment rate of the core creative industries' activities.

This dissertation focus on financial performance of firms which are operating in creative industries sector between 2004 and 2011 and contributes to the increase of the knowledge about CCI in general and in Portugal through different ways: (i) studying the financial performance of the private firms in the sector and the relation to the business cycle which is done for the first time, as far as we know; (ii) determined the impact of the subsidies on the duration of the CCI through a survival analyze, which also represents a debut for this sector in Portugal in our field of knowledge; (iii) analyzing the relevance of subsidies a public transfers to the economic and financial performance of the sector; (iv) measuring the contribution of the sector for employment and regional development; (v) making a profound research concerning the definition, delimitation and characterization of the cultural and creative sector in the Portuguese case.

The empirical study are based on the *Sistema de Contas Integradas das Empresas* (SCIE) accounting firm-level microdata and for the period between 2004 and 2011, considering both a larger sample of CCI firms including micro firms (N = 19,464) and a smaller sample (N = 1,431). The empirical strategy is organized around five hypotheses drawn for the performance and role of Portuguese creative industry sector: *Hypothesis 1: The business cycle affect the size and financial performance in creative industries.; Hypothesis 2: The creative firms' survival is affected by the business cycle and the government funds or subsidies are crucial to their survival.; Hypothesis 3: There are different sources which finance CCI development and the public funding is the CCI' development booster.; Hypothesis 4: The creative industries contribute positively to the growth of the economy and the employment during the period 2004-2011.; Hypothesis 5:*

The clusters of industries are geographically distributed according each sub-sector characteristics.

This thesis is divided in five sections. On the *first section* are presented and discussed the definitions of the creative industries adopting different criteria and categorization. In the *second section*, a literature review regarding to this type of industries is presented. In this part we putted together all the important approaches that are relevant to go ahead with the empirical component of this research. The *third section* is related to the empirical analyze of creative industries in Portugal. This part corresponds to the data sources, the characterization of the sector and its evolution and designs the empirical strategy. The *fourth section* shows and discusses the empirical results organized according the 5 research hypotheses. Finally, in the *last section* the conclusions are presented and some lines for a future research agenda are enounced.

1. Creative Industries

1.1. Definition of Creative Industries

An imperious topic of this study is the definition of creative industries in order to organize the data collection to proceed with the analysis. Classify this type of industry is not easy because there are some disagreement around the definition of cultural activities and creative industries (Galloway & Dunlop 2007, Cruz & Teixeira, 2015), and the lack of consensus regarding to the content of the sector and the discussions about how to delimitate it is an ongoing debate (Bina et al., 2012; Boix et al., 2011 & 2014; Galloway & Dunlop, 2007; Flew & Cunningham, 2010; Mateus, 2013; European Commission, 2013). Even so, since the beginning of the 2000s, the definition of CCI, the sectors that should or should not be embraced and what should be considered the core of these

industries, has been emerging to a consensus (Bina et al., 2012; Flew & Cunningham, 2010). Then it will be briefly presented the six different studies, which display different concepts, criteria and methodologies concerning to the delimitation of the Creative and Cultural Sector.

ESSnet on Culture Statistics 2009-2011

The European Statistical System Network on Culture developed at Eurostat consists on statistical framework built with the aim to harmonize the European statistics on Cultural and Creative Sector providing reliable comparisons at a European level. To make this real it was produced a guideline for the states embraced to this framework to treat similarly the collection of cultural data (Bina et al., 2012). The delimitation of the Cultural and Creative Sector is organized according to ten cultural domains and six functions taking into account several aspects of culture (e.g. economic, social and some other aspects linked to audience, consumption and financing) (Bina et al., 2012).

The ten cultural domains are: Heritage; Archives; Libraries; Book & Press; Visual arts; Performing arts; Audiovisual & Multimedia; Architecture; Advertising and Art crafts. The six functions correspond to Creation, Production/Publishing, Dissemination/Trade, Preservation, Education and Management/Regulation (Table I, Appendix). According to this study, the delimitation of the cultural and creative sector includes 29 fields with 4 digit code adopting the Portuguese Classification of Economic Activities the *Classificação das Actividades Económicas – Rev. 3* (CAE – Rev. 3) (INE, 2014), similar to Statistical Classification of Economic Activities in the European Community – Rev. 2.

European Cultural Foundation

The European Cultural Foundation published "The "Creative Sector" – An Engine for Diversity, Growth and Jobs in Europe" (Wiesand & Soendermann, 2005) and established that all the private and public activities related to the culture should be include to the CCI concept. Nevertheless, it does not present a clear distinction between cultural sector and creative sector. It includes arts, media and heritage activities connected with both public and private organizations and also comprises bordering activities such as design, architecture, cultural tourism and to the production of musical instruments. The classification adopted excludes from CCI other activities like advertising and software. This study also presents some actions that could be made to promote the development of these activities in order to contribute to the growth of GDP and to the job creation.

European Commission (KEA)

"The economy of culture in Europe" is a study prepared for the European Commission by KEA (2006). It defines creative sector as the sector that uses "creative" inputs to produce non-cultural goods. The creative activities are: design (fashion, graphic, interior and product design), architecture and advertising. It also incorporates some related activities such as the PC manufactures, MP3 player manufactures, mobile industry and other technological manufacturing industries. Although, this related activities are not considered in the statistical delimitation of the sector. Besides the delimitation of the CCI, KEA (2006) was one of the first studies that tried to evaluate the economic and social contribution of this sector on EU as well as the presentation of some strategic recommendations to the decision entities and the first to collect standard cultural data across Europe.

Department for Culture, Media and Sports (DCMS)

In 1998, the DCMS published "The Creative Industries Task Force and Mapping Documents" in UK, and was the pioneer on the identification of the creative industries as the sector that promote an important contribution to the economic growth and development. In DCMS (1998) it was not clear the identification and categorization of the distinct creative activities. Although, there are a continue development of its designation keeping up the economic and technologic evolution. Therefore, the concept of creative industries was not well-marked. Later, the DCMS (2007) published a follow-up study of the previous one and also inspired on the KEA (2006) report for the European Commission. The DCMS (2007) displays a classification of the creative activities with 13 categories such as advertising, architecture, visual arts (arts and antiques market and crafts), design, fashion, film and video, music, performing arts, publishing, software, television and radio, video and computer games, excluding property, cultural tourism and sports. A recent study, "Creative Industry Performance – A statistical analysis for the DCMS" (Economics, 2007) brought a new statistical update of the delimitation of creative industries without changing the concept previously presented by DCMS (2007). It considers 5 digits of *SIC* (Standard Industrial Classification) instead of 4. The five digit code bring more exactitude to the categories and the use of it is always preferable (White, 2009). White (2009) used the 2009' DCMS report as reference to emphasized that some of those industries which have difficulties in what concerns to the matching of business activities with a precise SIC code are treated as a whole category for statistics purposes. A review to the UK DCMS's creative industries economic estimates indicates that some activities should be comprised in order to construct those statistics that could be used to make certain comparisons. The activities that are crucial to aggregate are interactive

leisure software with software and computer services and music with performing arts (DCMS, 2009).

OCDE

The "International Measurement of the Economic and Social Importance of Culture" (Gordon & Beilby-Orrin, 2007) addresses the OCDE classification methodology, which is based on a review of the limitation of the international methodologies, namely those full-blown by UNESCO and Eurostat-LEG. The OCDE methodology focuses mainly on both the implementation of a regular data system and the production of international reliable statistics to allow international comparisons between several subsectors of the Creative Industry. The production of statistical data has been made based on a remarkable effort to standardize the distinct methodologies employed by different statistical systems. In order to produce comparable internationally statistics there are necessary adjustments on national statistics. The combination of the two methodologies employed in UK (DCMS) and Canada, was the first step to delimitate the cultural sector. The use of this combination with statistical systems of Australia, Canada, France, UK and US made it possible to study the contribution of the cultural and creative sector on GDP for those counties. The boundary sectors that are not included in the 2007 review are the cultural tourism, sports and activities related to entertainment such as gambling and betting because these activities sectors are not consistent to produce reliable statistics (Gordon & Beilby-Orrin, 2007) .

UNCTAD

The UNCTAD XI Ministerial conference in 2004 provided one of the first concept of creative industries: "any activity producing symbolic products with a heavy reliance

on intellectual property and for as wide a market as possible" (UNCTAD, 2004, page 4). Later, in UNCTAD (2008) creative industries are defined as "the cycles of creation, production and distribution of goods and services that use creativity and intellectual capital as primary inputs", which "constitute a set of knowledge-based activities, focused on but not limited to arts, potentially generating revenues from trade and intellectual property rights", comprising "tangible products and intangible intellectual or artistic services with creative content, economic value and market objectives". It is also mentioned that these types of industries "are at the cross-road among the artisan, services and industrial sectors" and "constitute a new dynamic sector in world trade" (UNCTAD, 2008 page 13). The classification of creative industries is subdivided into four groups such as heritage, arts, media and functional creations. There are some boundary sectors that are not included in CCI: cultural tourism and sports.

According to Mateus (2010) despite of these considerable studies and other researches that are been made, the delimitation of the Cultural and Creative Sector is still on developing both conceptually and statistically.

1.2. The Moving Boundary Between Creative and Cultural Industries

Garnham (2005) stated that the shift of terminology from cultural to creative industries has some implications not only concerning to a simple change of the brand name but also implies policy effects, which could be condensed in two: the creative sector become not only the key growth of the national and global economy but also the booster of the future employment and export earnings, despite of the decay of the manufacturing sector. The explanation of these two concepts and highlight its main differences is not an easy task taking into consideration the discrepancy of national and international theories.

The study prepared for the European Commission by KEA (2006) (previously mentioned) clearly distinguishes both concepts: creative and cultural. Cultural sector includes all the activities related to the traditional arts and to the culture in the broad sense, while the creative sector embraces the activities that use cultural resources as inputs in the production of non-cultural goods. Thereby, the creative sector is view as a source of innovation. On the other hand, the cultural sector is subdivided into two groups: non-industrial sector which add simply the production of non-reproducible goods and services that are for an immediate consumption, and the industrial sector which aggregate all cultural products produced for the" mass reproduction, mass dissemination and exports". The non-industrial sector includes the entire arts field (visual and performing arts and heritage) while the industrial sector includes the "cultural industries" such as "film and video, video-games, broadcasting, music, book and press publishing".

According to UNCTAD (2008), the cultural activities are a subset of creative industries. The cultural industries are basically those that produce cultural goods and services. It also mentioned the difference between upstream activities (traditional arts including both visual and performing arts) and downstream activities (activities that are more close to the market such as publicity, editing and printing press and media activities). UNESCO defined cultural industries as those that can "combine the creation, production and commercialization of contents which are intangible and cultural in nature. These contents are typically protected by copyright and they can take the form of goods or services" (UNESCO, 2006, pp. 2). Therefore, the cultural industries have a unique profile due to the double combination of culture and economy, whereas these industries promote and maintain the cultural diversity and guarantee the access to the culture.

Briefly, the activities embraced by these two types of industries, cultural and creative, are in a permanent transformation, depending on different methodologies, and therefore it will always be a continue moving boundary between them.

Considering the previous survey about the concepts of CCI, from this point we will denominate these industries as Cultural and Creative Industries (CCI), with the content defined by the current literature, and basing our approach on the *ESS-net Culture Final Report* (2009).

2. Literature Review

2.1. Business Cycle Effects on the Financial Economic Performance of Creative Industries and Survival Analysis

2.1.1. Business Cycle and Creative Firms Financial Performance

The business cycle is a crucial indicator for the industries' and firms' performance and their survival. Audretsch & Acs (1994) stated that when there is a macroeconomic expansion it can be observed an increase of the startup new firms in practically every sector, as well as in a macroeconomic recession it is expected that the startups firms slow down. The relationship between the macroeconomic context and firm's dynamic and financial performance in the Creative Sector in Portugal was not studied yet, as far as we know.

The phenomenon of the startups new firms studied by Audretsch & Acs (1994) will be analyzed for the Portuguese CCI, and it is part of the scope of this research the analyze of the impact of the business cycle on the firms by their life cycle (e.g. new firms, firms already installed).

Lee & Mukoyama (2015), who will be followed by the present research on section 4.1., approached the cyclical analyze from several empirical perspectives for the U.S. manufacturing firms between 1992 and 1997. They tried to understand the dynamic of the firms studying the average and relative size measured by the number of employees for three types of firms: born, continuing and death. They conclude that the continuing firms present a number of employees higher than the firms that born and death. To determine the relative size of the firms, Lee & Mukoyama (2015) divided the size of the born and death firms type by the average of the continuing firms (adopted as reference type), and they verified that born and death firms are smaller than the continuing ones by 40% and 50%, respectively. They explained this result by the level of productivity, being the born and the death firms less productive.

Additionally, considering the macroeconomic context, Lee & Mukoyama (2015), divided the period under analysis into two categories – good and bad years – based on the growth rate of the manufacturing output. They considered as a good (bad) year if the period between year t-1 to t was above (below) the average of the growth rate of the manufacturing output. The two most relevant contributions for the present research, are the cyclical measures developed by Lee & Mukoyama (2015): (i) the average and relative size of born and death firms; and (ii) the entry and exit rates.

For the average firms' size and the firms' size relative to the continuers firms the authors observed that both average and relative firms' size present similar conclusions: for born firms the number of workers is higher on recessions than on favorable periods and for death firms the number of workers are similar over the business cycle.

The entry (exit) rate corresponds to the number of born (death) firms as a percentage of total number of firms each period. When analyzing the entry and exit rates based on the good and bad years, they observed a positive significant difference on entry rates between booms and recessions, but when the exit rates are analyzed that difference vanish. The reason for the entry rates be higher during booms is mainly due to the existence of barriers during the non-favorable period and the authors conclude that independently from the indicators used to classify the 'good' and the 'bad' years (e.g. GDP growth rate or unemployment rate), the entry rate presents higher values for good years.

Further to the analysis by business cycle impact on firm size, it is also relevant to understand the financial health of the firms of this sector and observe if there is any correlation with the macroeconomic context. The EC report (European Commission, 2013) evaluates the financial health, in the short and long run, by CCI functions or subsectors (mentioned on previous topic 1.1.) and across countries, where applies the current ratio to measure the short term financial viability as well as the solvency ratio for the long term analyze. The firms are considered to present a good financial health if the current ratio is above 2 and the solvency ratio is above 30% (values estimated for creative and cultural sector). Since the solvency ratio is distinct according to each industry, for this sector it was considered 40% of solvency ratio as a minimum percentage for the firms that have a high level of pre-financing. Based on NACE 4-digit level, in 2010 practically all CCI functions (with the exception of Dissemination /Trade subsectors) grants a good financial sustainability which highlights the high levels of both ratios for the Preservation and Education functions. When comparing the results of this financial indicators across the EU-27 countries almost countries could be consider as having a healthy financial

situation in the short term. Nevertheless, when analyzing the long term indicator (solvency ratio) Portugal, as well as Italy, Latvia, Luxemburg, Malta and Romania, indicates low solvency values. However, the average values per country should be prudently interpreted since among countries there is a large diversity of the composition of CCI.

To study the impact of the macroeconomic context on the creative sector (size and financial performance) following hypothesis will be tested.

Hypothesis 1: The business cycle affect the size and financial performance in creative industries.

2.1.2. Business Cycle and Creative Firm Survival

The performance across the business cycle can also be studied by the firm survival. The survival analysis, applied in diverse scientific areas like medicine or economics, consists on several statistics that focus on time duration until a given event of concern happens (Hamilton, 2004; Rabe-Hesketh & Everitt, 2004). In the case of the survival of a firm the 'event of concern' is the exit of the firm or its death. The most frequent findings regarding to the survival analyses of firms, namely in the Portuguese case, is that the survival rates present a positive correlation to establishment size and age (Mata & Portugal, 1994, 2002; Audretsch, & Mahmood, 1995). Additionally to the usual explanatory factors of survival (e.g. the firm size) this research also analyzes the effect of the government subsidies, i.e. the impact that the financial public support has on firms' survival in this sector. So far we know, this test will be pioneer for the Portuguese creative firms.

The impact of the public seed financing on the survival rates was previously studied worldwide. For Germany, Pfeiffer & Reize (2000) relate the impact of the subsidies on both firm survival and unemployment, achieving a negative effect on firm survival and no general outcome on employment. This analyze was reviewed by Almus, M. (2001) who proved that the amount of funds granted on start-up firms provide an increase of the employment if considering firms that have survived at least for six years. Battistin, Gavosto & Rettore (2001) also examined the impact of public funding on Italian startups through a comparative analyze of the hazard rates of subsidized and non-subsidized firms and found that the hazard rate of subsidized firms increased as time passed and the opposite happened for the non-subsidized firms until the first four years. After that period they verified that both rates become similar. Désiage et al. (2010) stated that the subsidized French firms are more likely to survive after the first two years, being the public support generally a tax cut instead of a lump sum. More recently, Fuentes & Dresdner (2013) determined a hazard function for the duration of micro-enterprises in southern Chile and conclude that the public funds increase the survival. Although, they stated that this event depends on the sponsor of the funding. Gennari & Francesca (2013) analyzed the Italian firms' survival of new startups managed by females comparing those that were subsidized through a specific Italian Law with the ones that were not. The authors reach the same result of other studies, i.e. until some point at time there are evidences of a significant difference between the longevity of subsidized and non-subsidized firms and after that the difference vanish. Moreover, they conclude that the difference between both survival curves is detected only until the six year of life.

In this research, it will be analyzed by year the number of firms that remain active since their born since 2004 until 2011 and if the subsidies are an important explanatory factor for their survival. Thus, I will try to answer the following:

Hypothesis 2: The creative firms' survival is affected by the business cycle and the government funds or subsidies are crucial to their survival.

2.2. Public Policies and Subsidies Effects on Financial Performance of Creative Industries

The financial tools and the public policies (for example the monetary policy) are extremely important to the development of any enterprise. Several studies discussed that the principal barrier of the CCI development is the access to finance (Mateus 2013 and 2010; European Commission, 2013). Mostly of these firms are very small and one of the most notable facts regarding to the Small and Medium Enterprises (SME) is that these type of firms have more difficulties to access to finance than the large ones (Beck & Demirguc-Kunt, 2006) being information asymmetry the main reason of this problem (European Commission, 2013).

The financing needs for CCI is not studied very often and the main European research about this issue is the *Survey on access to finance for cultural and creative sector* commissioned by the European Commission (European Commission, 2013). The EC report (European Commission, 2013) estimate the financial gap in CCI providing information to sensitize the European policy makers to the necessity of overcoming the problem. The information is collected via two sources: an online survey conducted to CCI firms; and interviews from CCI's financiers.

CCI have specific features that emphasize the difficulty of attracting external finance. European Commission (2013), divides the CCI characteristics into three groups related to: (i) their intrinsic features; (ii) business composition; and (iii) market conditions. The inherent characteristics are that they present high weight of *intangible assets* which is the opposite of most of the tangible-intangible mix in most of the sectors. Because the tangible assets are very desirable as collateral on bank loans, this characteristic impacts negatively on the credit access. CCI are extremely *dependent on internal demand* mainly because most of them are linked to tourism. Secondly, the CCI present similar business composition. Probably the most visible feature is the size: in the CCI sector most of the firms are micro, it means, has less than ten workers. The firm's dimension consists in a real barrier to access to finance apart from their potential to develop, being the lack of financing funds the biggest contributor to the non-development of these firms. It is cross-cut to CCI firms the *high dependence on public funding* (with few exceptions) and the low knowledge and *shortage of business managerial skills*. Regardless the subsector (or function) of the firm, the CCI shows a specific market profile, with a small market size (niches of demand in some cases) and the firms usually remained on *a specific local, regional or country* due to the difficulties of exporting (KEA, 2010).

The CCI's firms are also characterize for specific financial needs and resort mainly to their own earnings, government subsidies, and largely short-term credit. The financial sources, based on the annual accounts of 2010, correspond to three main groups: "shareholders' funds [which includes also subsidies]; noncurrent liabilities (debts which are due in more than 1 year); and current liabilities (due and payable within 1 year)." (European Commission, 2013 – p.74). The *short-term finance* is mostly used to pre-

financing the business plans and to mitigate the financial gap caused by the period of waiting for other funds such as medium or long run bank loans, loans from private investors or organizations (e.g. sponsors) and crowdfunding. The short-term credit, the most expensive way of obtaining bank financing, is used more often because it is easier to obtain compared to other instruments. Although, the long-term finance is also essential to ensure the stabilization of the business projects. In 2010, the short-term credit is the most sought financing source (European Commission, 2013). Exception are Education and Preservation which are most financed by shareholders' funds, with respectively 60% and 57% share in total financing

How the creative firms are financed depends on the specific structure of CCI sector and also on the government budget share allocated to finance this sector. For example, in Northern and Western European countries CCI firms are mainly financed by shareholders' funds. Comparing the financial sources which support the Portuguese creative firms and the EU-27 countries, Portugal presents in 2010 year a significant lower percentage of financing through government subsidies (17% over 33%), financing by long-term debt presents a difference that is not so sharp (34% over 22%), and the share financed by short-term debt is similar to EU-27 countries (49% over 45%). Mateus (2010) stressed the relevance of the government subsidies on financing Portuguese's creative firms as an important contributor to its expansion and development.

The results from above referred survey (European Commission, 2013) show that the CCI firms are discouraged to request for external funding and the main barriers pointed were: the complexity of the process of funding request; the duration of that process; and the fact these firms has mainly intangible assets to offer as guarantee which does not correspond to the traditional financial products offered to creditors to cover the

financial risk of the investment. The fact that the intangible assets owned by the CCI firms do not fit as a collateral was also mentioned from the perspective of the financiers as the main barrier although they argue that the scarce of a well-designed business plan and good managerial skills amplifies this problem, being more likely the funding rejection by banks. Because CCI are very often community or municipal activities also worsens this situation because only few banks invest on this type of activities. For specific CCI activities the equity investment is the major financial source considering the high levels of novelty and risk associated to CCI.

The financing gap is mostly used to describe the firms' early-stage and it corresponds to the required amount of money to fund the ongoing and development projects of a firm that has not currently access to finance (European Commission, 2013). This indicator exists due to the existence barriers to access to finance and it is sharpest on some CCI as Visual and Preforming Arts, Arts & Crafts, Music, Books, Architecture, Advertising and Design which when comparing with Audiovisual, Heritage & Education exhibit a considerable lower loan amount. European Commission (2013) states that it is likely that the subsidies assignment decrease during the current decade due to the intensification of the stiffness of the financiers' criteria (financial crisis effect), which will affect the access to finance and consequently the financing gap. The new Creative Europe Programme (2014-2020)[1] which appears as a third party guarantee facility encouraging banks on financing CCI could mitigate this financing gap.

It will be test the following hypothesis:

[1]https://eacea.ec.europa.eu/sites/eacea-site/files/documents/guidelines-call-for-proposals-cooperation-projects-2015_en_1.pdf

<u>Hypothesis 3:</u> There are different sources which finance CCI development and the public funding is the CCI development booster.

2.3. Creative Industries Role on the Global and Local Economic Growth and Job Creation

The CCI are recognized as important contributors to societal development worldwide and the firms which belong to CCI are crucial as a component of the modern economic infrastructure (Heinze & Hoose, 2012). The relevance of these firms as a social developer are also stressed as drivers of the economic growth (INE, 2015; European Commission, 2013; Mateus, 2010), and the booster of employment (Cruz & Teixeira, 2015a & 2015b). Potts & Cunningham (2008) argues that the impact of the CCI on economic growth is not purely measured through the CCI economic value (e.g. the production of cultural goods or the employment creation) because these firms have more than a static role and their contribution to economic growth and development exceeds the CCI contribution to culture and society. Moreover, CCI also contributes and develops the society through the innovation and dynamism created in the places where they are located (Cruz & Teixeira, 2014; Boix et al., 2014; Power, 2014; Berg & Hassink, 2013).

CCI contribution varies across countries and regions because they have different compositions and distinct national policy makers (Boix et al., 2014). Geographically, across the EU-27 countries[2]the CCI employment is mostly concentrated on Germany, United Kingdom, France and Italy, even though there are a couple of Eastern Europe[3] that also present a higher number of employees on CCI (European Commission, 2013).

[2] This analyze excludes countries that present data missing which could change the top four. The countries excluded was Spain, Ireland, Luxemburg and Estonia.
[3] Poland and Romania

The fact that Portugal does not fit on the top four, the Portuguese economy does not run away from this trend about the growing relevance of this sector. INE (2015) recently published a report for three consecutive years (2010-2012), based on Culture Satellite Account in accordance with National Accounts (2011), and shows that there are approximately 66,000 Portuguese firms belonging to the CCI defined according to the "ESS-net Culture final report" (Bina et al., 2013). This creative sector corresponds, on average, to 2.0% of employment and 1.7% of the GVA of the global Portuguese economy.

Cruz & Teixeira (2015a) analyzed the employment of core CCI[4] on private sector (excluding activities which the main purpose is not wholly the production/creative of creative and cultural goods), and conclude that it corresponds to 3.5% of the total Portuguese employees.

The inclusion of the technology and innovation in the CCI has a great impact on the economy. The creative technological industries, firms that include the information and communication technology (ITC) provided an increase of the importance of the CCI (Garnham, 2005) and the ITC growth helps the development of CCI (Potts & Cunningham, 2008), making its activities/production more affordable not only to the domestic but also to external market.

Because the economy and the employment levels and growth rates in Portugal are affected by the CCI composition and dynamic we hypothesize that

[4] The core CCI considered by Cruz & Teixeira (2015) is composed by: Advertising and marketing, Architecture and engineering, Design and fashion design, Crafts, Films, video and photography, TV and radio, Music and the performing arts, Publishing, Software publishing and computer consultancy and Research and Development (R&D). The activities excluded were Education, Business consultancy, Legal, Finance and health services, High-tech sector and Sports and tourism activities.

Hypothesis 4: The creative industries contribute positively to the growth of the economy and the employment during the period 2004-2011.

2.4. Dynamic of Regional Specialization of Creative Industries

Many researchers found that the CCI are concentrated in some strategic locations and have a relevant role in regional and local development. Indeed, the spatial location of creative industries generates not only benefits from its localizations but also provides an increase of the regional economy (Berg & Hassink, 2013). Nevertheless, the location depend on the features of the CCI but also on the firm's educational level of employees, the technological intensity and more importantly the municipality characteristics because local authorities very often are providers of funding for CCI firms. The regional clusters strategies increase the relevance of CCI (Heinze & Hoose, 2012), notwithstanding the propensity to geographical agglomeration varies across sectors (European Commission, 2011).

In a regional perspective, the location of the clusters of these firms tend to occur in the large urban zones (Boix et al., 2011; Florida, 2005). Cruz & Teixeira, (2014) quoting Jacobs (1969) stated that this tendency exists because CCI take advantage from the urbanization economies. Indeed, the CCI benefit from the agglomeration of these firms in the metropolitan areas by different ways: the emerging of new creative ideas; the diversity of products and technology; the market potential in high populated areas; the cultural variety; and the facility of transmission of new trends and ideas. A recent study of CCI in Sweden corroborates this, concluding that those firms which are strategically located in some regional and urban areas, have also an important role to employment and to the economy as a whole (Power, 2014). Based on France, Great Britain, Italy and

Spain, Boix et al. (2014) seek to understand the differences among countries concluding that the public funds for the creative industries are applied differently, being extremely decentralized the public financing to local governments in Spain, while on the other three countries the central administrations controls more than half of those public funds "through industry-specific rather than territory-specific policies". The authors also referred that it is more effective to have a policy that approaches a location-based (e.g. Spain) instead of an industry-based. Boix et al. (2014) pointed out that the specialization on CCI varies across countries: France is slightly more specialized in publishing, architecture and film while Great Britain is specialized in architecture, besides of both countries are the ones that are the most diversified. Italy and Spain are highly specialized in fashion although Italy is also specialized in architecture while Spain is also in printing.

A recent study for Portugal (Cruz & Teixeira, 2014), based on administrative data from *Quadros de Pessoal* for 2009 year, concludes that the behavior about location of the Portuguese CCI is similar to the rest of Europe, being mostly located by creating clusters around few important urban zones.

Definitely European CCI are attracted to urban zones and thus, for Portugal we will try to empirically test it. We will define the activities that predominates in urban zones and study the heterogeneity of each sector based on their own different location and characteristics. Thus, we hypothesized that

Hypothesis 5*: The clusters of industries are geographically distributed according each sub-sector characteristics (e.g. creative skills human resources, potential market, etc.).*

3. Empirical Study of Creative Industries Sector in Portugal

3.1. Data Source and Sample Selection

Data Base: Accounting Data Base – *Sistema de Contas Integradas das Empresas* (SCIE)

This research studies the firm's financial performance of CCI firms using an accounting firm-based data, the *Sistema de Contas Integradas das Empresas* (SCIE) Statistics Portugal (2004-2011). The SCIE database includes two groups of non-financial firms according to the legal form: the Societies [in Portuguese: *Sociedades*] and the Individual Companies [in Portuguese: *Empresas em nome Individual*]. The information available for each of the two groups is very different: for the Individual Companies there are less than ten variables available. The variables are: turnover, employees, region distribution (based on *Nível 2 da Nomenclatura das Unidades Territoriais para Fins Estatísticos, 2002*/Level 2 of the Nomenclature of Territorial Units for Statistics 2002), year of data reference, and the sector of activity at 5 digits NACE Rev. 2[5], and the born and death[6] year indicators. Moreover, the Individual Companies corresponds to the majority of the sample of this study, being mostly micro firms, i.e. the number of employed persons is below ten workers[7] (Table I, Appendix).

The variables available for the first group of firms, the Societies, are the same variables available to the Individual Companies and additionally many others mainly associated to profits and cost, number of employees and taxes and subsidies. For this reason some analysis are only possible to carry on for the group of Societies due to the

[5] Corresponds to *Código de CAE Rev.3 – codificada*
[6] Data missing of death indicator for 2010 and 2011.
[7] http://ec.europa.eu/eurostat/web/structural-business-statistics/structural-business-statistics/sme

lack of information for the Individual Companies. Therefore, in some of the analysis performed in this thesis, the results could be skewed and should be interpreted carefully considering that the major legal form of the firms in the CCI is the Individual Companies [in Portuguese: *Empresas em nome Individual*] which represent about 92.65% of the total of the firms included in the database.

Operationalization of the concept

The methodological particularities regarding the selection of the CCI is based on the taxonomy on creative and cultural sectors adopted by the ESSnet-Culture, European Statistical System Network on Culture - Final Report, found in Bína et al. (2012). Applying the definition by ESSnet presented on section 1.2., this sector has 100,122 observations during the period of analyze. Restricting the sample only to the firms that are registered on the data base during the eight years period of analyze (2004-2011) the total number of firms drops to 19,464. Additionally and limiting the sample by considering only the firms that have a number of employees equal or above ten employees, the number of firms reduces significantly to 1,431. According to ESSnet classification the sample is subdivided into 6 categories: Creation; Production/Publishing; Dissemination/Trade; Preservation; Education; and Management/Regulation (Table II, Appendix). These 6 categories are not homogeneous not only because they present distinct specifications but also for the weight that each have on the CCI evaluated by the number of firms, by the number of employees or by the turnover.

CCI and the *Classificação das Actividades Económicas (CAE)*

The creative activities are identified by a NACE code with correspondence in the CAE Portuguese code *Classificação das Actividades Económicas – Revisão 3* (CAE Rev.

3) the classification used by SCIE database. To map the CCI, they can also be organized in accordance with SIC code (Standard Industrial Classification code). DCMS (2009) states that the 5 digit code provides more accuracy rather than a 4 digit code and therefore in this study we will use the higher level of desegregation (5 digits CAE code).

The Culture and Leisure industries are stated on the *R section* of the CAE presented as *Actividades artísticas, de espectáculo, desportivas e recreativas* (INE, 2007). We consider the delimitation of the culture and creative sector adopted by ESSnet, which evolves 29 fields/activities with a 4 digit code, applied to the Portuguese CAE code. (Table III, Appendix). However, besides of the preferential use of a 5 digit code we considered other activities related to the cultural and creative activities that belongs to other sections and excluded some others that we deliberated that they should not be considered in this study.

3.2. Phases and Methodology of Analysis

In terms of methodology, this dissertation is divided into two different stages. Initially, the original files by year from the SCIE are aggregated into one single file with eight observations for each variable considered because the period under study is 2004-2011. The second stage corresponds to the empirical test of the 5 hypothesis presented in section 4. Results and Discussions Analysis.

For the Hypothesis 1, and following and adapting Lee & Mukoyama (2015) empirical strategy presented in section 2.1., the firms are classified into 3 categories in each year: born, death or continuing. It is calculated the average size in each of the 3 groups and the size of the born and death firms in relation to the continuers firms. Additionally, the ‘good’ and ‘bad’ years of the Portuguese business cycle are identified

using the criteria of the Real GDP growth rate. For the Real GDP growth rate, it was consider a good (bad) year if this measure for a certain year was above (below) the average of GDP growth rates. Base on this distinction it is tested the entry and exit rates, and the average and relative size for born and death firms. Moreover, the entry and exit rate is also analyzed based on the good and bad years defined by the unemployment rate change. Using the unemployment rate change to define the macroeconomic context, we consider as a good, bad and very bad year when this indicator presents a negative variation, positive variation but lower than 7.5% and a positive variation higher than 7.5%, respectively.

For the verification of Hypothesis 2 and Hypothesis 3, it is examined if the subsidies have a positive impact on the firm's survival through a survival analysis. It will be estimated the survival rates of firms born during the period 2004-2011 accomplished to the Kaplan-Meier survival estimates. Additionally, it is conducted a descriptive analysis of the total number of firms as well as the born, death and continuing firms for each year. From these analyzes it is expected to determine the number of firms that survive year after year.

Concerning the Hypothesis 4, based on descriptive analysis, it was determined the evolution of the four variables: (i) size (employees); (ii) turnover (turnover); (iii) GVA at factor costs (GVAfc); and (iv) GVA at market prices (GVAmp). In order to evaluate the CCI contribution on the economy growth and development, these variables will be compared in a national level. It is also verified the yearly heterogeneity of these four measure between groups.

For the Hypothesis 5, it is considered the Portuguese territory division (NUTSII) as the base of the spatial analyze. Besides of the global analyze by 7 Portuguese regions, it is subdivided through the six functions. Moreover, it will tested the heterogeneity of CCI between regions through variance analysis (ANOVA-tests).

All the estimated results have been determined by the intensive programming task using both IBM-SPSS and STATA13.

4. Results and Discussion

4.1. Business Cycle and CCI Firms' Performance

The results associated to ***Hypothesis 1*** studied the impact of business cycle on the firms' performance. Concerning the average size of continuing, born and death firms, we observed that during the 8-year period the continuing firms are approximately 50% higher than the born and death firms (Table IV, Appendix). The born firms are on the second size rank position and the death firms are those that are smaller. There is statistical evidences of high disparities on continuing firms and, on the other hand, low disparities regarding to the born and death firms. These results corroborates those obtained Lee & Mukoyama (2015) nevertheless our data include a large share of micro-enterprises and as a result the average size is smaller. The relative size of the born (death) was obtained by dividing the born (death) size by the average size of continuers firms, for each year (Table V, Appendix). We could state that, in relative terms, the born and death firms are approximately 42% and 43% smaller than continuers firms respectively. These results are similar to the ones found by Lee & Mukoyama (2015), although the difference between the relative size of born and death firms is sharpest on their study, circa 10%. When analyzing the two dimension indicators according to the 'good' and 'bad' years based on

the Real GDP growth rate the results are not consistent with the study recently produced (Table VI, Appendix). The average size of born firms are similar across booms and recessions, while the average size of death firms changes over the business cycle, being higher in good years. In relative terms, the born firms are slightly larger in recessions than in booms and there is practically no magnitude between the relative size of death firms across the business cycle. The 'good' and 'bad' years are analyzed considering the Real GDP growth rate (Figure I, Appendix) and the Unemployment rate change (Figure II, Appendix). The entry rates of CCI firms are higher than the exit rates for both cyclical indicators on good years (Table VII, Appendix). Although, the fact of the entry rates are higher in good years concluded by Lee & Mukoyama (2015) just applies for Real GDP growth rate. These result could be justified once these authors considered equally two macroeconomic periods for the Unemployment Rate change while I turned this analyze more detailed by including another cycle (Very Bad Years).

It is clear that apart of the criteria used to analyzed the impact of the macroeconomic context on the performance of CCI firms, these firms tend to develop their activities on 'good' years (expansion), otherwise the tendency is to slow down or even for some of them achieve most extreme situation, official declaration of their shut down (death).

The impact of the business cycle on the financial performance of the CCI could also be analyzed through the behavior of several economic and financial indicators, in a descriptive way (Table VIII, Appendix). In a more detail analyze, we observed that for some financial ratios there is a clear tendency until 2007-2008 and due to the macroeconomic context on the period immediately after the tendency change assuming an opposite direction. On a scenario where everything else remains equal, the *financial*

autonomy ratio indicates that, the vulnerability of the firms were growing until 2008 and before that there were slightly signs of a greater financial stability. It was also observed that until 2009 there were an increase of the *investment rate* followed by a significant decrease until 2011. Besides of the improvements until 2008-2009, there were evidences that both sales and assets of the firms could not generate efficiently financial return on the future, by evaluating the *return on sales* and *return on assets*. On the contrary, in 2007 the *return on equity* ratio indicates that the money invested by shareholders generate profit for the firm. The *assets rotation* reveals that the worse efficient period to generate sales were between 2007 and 2010, reaching the highest efficiency in 2011. Nevertheless, some financial indicators, as *debt-to-equity ratio* and *equity rotation*, do not present a clear tendency exhibiting a constant variation.

The economic and financial crisis started in United States of American at the end of 2007 (NBER[8]) which was quickly felt overall European countries and in Portugal combined with a public debt crisis impacted on all sectors and this CCI sector was not an exception.

4.2. Government Funding and CCI Firms' Performance and Survival

The ***Hypothesis 2*** and the ***Hypothesis 3*** are studied by the duration of the firms and by modeling the survival determinants testing the inclusion of subsidies as an explanatory variable. The CCI firms are divided into three firms' status: (i) born; (ii) death; and (iii) continuing firms (Table IX, Appendix). For all period of analyze (2004-2009), continuing firms represent more than 70% of the total number of firms with an exception on 2009 year, revealing a clear decrease trend. The born firms increased until

[8] http://www.nber.org/cycles/cyclesmain.html

2007, although on the remaining years it decreased (e.g. on 2007 the born firms represent circa 17% of the total firms, while in 2009 it was only 12%). On the contrary, the weight of death firms on the total number of firms increased over time, passing from approximately 11% in 2005 to 19% in 2009. The development of these three types of firms confirms that, despite of a macroeconomic effect, there are evidences of a decrease on the firms' survival, being less the firms that remain active comparing with the increase of the death firms. This fact could be studied through a survival analyze which seeks to determine the survival rates (duration) of the born firms. The empirical literature relating public policies of funding or support and firm survival were briefly presented in section 2.1. (Mateus, 2013; European Commission, 2013). The duration of the observed firms is analyzed considering that the observations are right-censored, meaning that the failure event of this analysis (firm's death) could not occur during the observation period (for instance, some of 2004 born firms continued active after 2011). These analyses were made only for the firms born since 2004 until 2006, and consequently the number of observations is smaller.

The Kaplan-Meier survival curves (Figures III, IV, V, Appendix) for the two groups of firms (those which receive subsidies and those which do not receive) present inconclusive outcomes. For the firms born in 2004, receiving subsidies (binary variable) does not affect survival positively. By contrary, those that receive subsidies survive less years. For the firms born in 2005 there is no difference between the subsidized and non-subsidized firms during the first three years of firm life (2005-2007) of survival. After that the pattern is similar to those born in the previous year. Finally, for the firms born in 2006 there is a slight higher survival rate for the subsidized firms in the first three years (2006-2008) and after it is a larger positive difference for the subsidized firms. It is likely

that this qualitative change, (from 2009 further, the subsidized firms born in 2006 have higher survival rate) results from the crisis situation. Furthermore, we can also conclude that the improvement of the firms' survival is related with the subsidies only in periods of downturn.

Apart of the impact of the subsidies on the firms' survival we analyzed the evolution of the transfers between the government and CCI firms. It was analyzed the development of the subsidies (*subs*) and taxes (*tax*) during the period of analyze in average terms (Figure VI, Appendix). We observed a dramatically decrease of the subsidies on 2005 compared to the previous year, and from 2005 further the grant of subsidies increased until 2011 (e.g. the subsidies in 2011 were 53% higher than in 2005). The taxes applied followed the evolution of the subsidies until 2008, although after 2008 the taxes decreased being approximately 67% of the subsidies. Analyzing these two financial indicators by the 6 functions, we verified that Education is the function that received more subsidies and at the same time is the one that pays less taxes (Table X, Appendix). Creation is the function with less subsidies and Dissemination/Trade have a higher value of taxes. On a spatial comparison, Lisbon Metropolitan Area present higher value of both (subsidies and taxes), being Madeira followed by Algarve the regions were the subsidies applies less (Table XI, Appendix). The regions that pays less taxes are Alentejo and Azores.

4.3. CCI Firms Contribution to Employment and Growth

The empirical verification of the ***Hypothesis 4*** is analyzed based on the evolution of several indicators during the period under analysis. The development of CCI attracted the attention of the European policy-makers due to their important contribution to the

society (European Commission, 2013; Mateus, 2010). Their economic relevance of this sector for Portugal is tested here through the evolution of the size (*employees*), turnover (*turnover*), GVA at factor costs (*GVAfc*) and at market prices (*GVAmp*). Comparing these four indicators in 2004 and in 2011, we observed a general decrease across time, with an exception of the number of employees which increased approximately 5%, while the turnover decreased 14% and both GVA at factor costs and at market prices diminished circa 5% (Table XII, Appendix). From the annual analyze, it is clear that these four indicators increased until 2008 being this year the turning point. As mentioned previously, this behavior seems to be associated to the 2008 crisis and apart of this important factor there were not extreme falls during the period of analyze.

In average terms, CCI represent approximately 2.4% of employees, 1.9% of turnover, and circa 2% of both GVA at factor costs and at market prices in relation of the business economy. The weights of these four indicators remain stable across time (Figure VII, Appendix). However, there is a slight increase in the share in total employment from 2004 to 2008, while the turnover present a slight decrease from 2004 until 2010. Considering that the weight of GVA at factor costs and market prices remain stable, and the difference between these two indicators corresponds to the taxes net of subsidies, indirectly this suggest that the net taxes did not change across time differently from the total business. Finally the data for all the economy indicates that the mean size of firms is 3 employees per firm and a median equal to one. This also illustrates the relevance of micro-firms in the business structure in Portugal.

Using the analysis of variance (ANOVA), the results obtained show that the behavior of the employment, the turnover and the value added presents a statistically significant

difference between the 6 creative functions (Table XIII, Appendix), the 4 firm's size categories (Table XV, Appendix) and between the 7 regions (Table XIV, Appendix).

4.4. Spatial Location of CCI and Regional Development

The ***Hypothesis 5*** verification is based on the information from SCIE using in this case a sample, of 19,464 firms organized by regions according to the *NUTSII*[9] which divides the Portuguese territory into 7 regions: North, Algarve, Center, Lisbon Metropolitan Area, Alentejo, Azores and Madeira.

Previous studies show that (see Section 2.4.) the spatial location choices of CCI's firms are heterogeneous across sectors, despite of the tendency to agglomerate in a few number of municipalities considering the year of 2009 in Portugal (Cruz & Teixeira, 2015) and to concentrated mostly on the large urban zones accordingly to the 4 EU Countries studied by Boix et al. (2011).

Indeed, the Portuguese CCI' firms during recent years (2004-2011) tend to concentrate mainly on the two biggest urban zones (Lisbon Metropolitan Area and North), supporting the argument that the spatial patterns of the creative firms are the large urban areas (Boix et al., 2011; Florida 2005; Cruz & Teixeira, 2015). The distribution of the CCI in Portugal by 6 categories (6 subsectors) was analyzed through the average of the 8-year period (Table XVI, Appendix). On a ranking position, Lisbon Metropolitan Area clearly present a higher number of CCI clusters, followed by Porto and Center of Portugal. On the opposite, Azores is the region that concentrates less CCI firms. Cruz &

[9] *Nível 2 da Nomenclatura das Unidades Territoriais para Fins Estatísticos, 2002* (Level 2 of the Nomenclature of Territorial Units for Statistics 2002)

Teixeira (2015) explained the high agglomeration tendency through the human capital intensity, industry diversity and social equality observed on the largest urban zones.

Practically all firms that belong to Creation, Production/Publishing, Preservation and Management/Regulation exhibit a tendency to concentrate mainly on Lisbon Metropolitan Area and Porto, tending to favors locations nearby to manufacturing industries and where exist high creative diversity and high population density. The Education activities concentrates on these two top metropolitan areas although the main reason of this preference is the population with high education which leads to these activities seeks locals around universities (Cruz & Teixeira, 2015). The activities that have higher presence overall regions are the ones related to Preservation and Management/Regulation functions, due to the high number of firms that each one embraces when comparing to the remaining functions.

Summarizing, the regional distribution shows that the Portuguese CCI firms tend to behave similarly to other European creative activities (Boix et al. 2014) and there was no relevant change since 2009 year analyzed by Cruz & Teixeira (2015).

5. Conclusions and Future Research

This dissertation studies CCI (Cultural and Creative Industries) according different perspectives and applying diverse methodological tools, focusing on financial issues and employing a large accounting dataset for the period 2004-2011. The main contributions of this research are fivefold. First, extending previous literature studies the impact of business cycle and recent crisis on firms' performance. Second, explores the role of public subsidies on the CCI firms' survival. Third, studies the financing obstacles and the funding sources. Fourth, puts the CCI in perspective presenting the contributions

to global output and employment. Fifth, illustrates the relevance of CCI to the local and regional development. This five aspects also correspond to five hypothesis around which the empirical work is organized. Additionally, the conceptual section about the (moving) frontiers of this sector and correspondent concepts and definitions illuminates for the Portuguese case, a worldwide ongoing debate.

The selection of the CCI from the total of Portuguese firms distributed according the CAE code, follows ESSnet (Bina et al. 2012). An yearly analysis, based on SCIE accounting microdata, were conducted considering two distinct samples: firms belonging to CC sectors which present a number of employees equal or above 10 (N=1,431); firms belonging to CC sectors considering al firm sizes, micro, small, medium and large (N=100,122). After a classification of CCI according to their delimitation into the *6 cultural functions* and size dimension categories, we proceed to the empirics in order to test the five hypothesis.

CCI Characteristics and Trends

The CCI is a very specific sector, presenting a statistically significant differences among: (i) 6 functions; (ii) firm's size categories; and (iii) regions. Generally, CCI firms has gained attention not only by the European policy makers but also by their own national governments due to their development and contribution on the last years. The number of firms increased between 2004 and 2011, passing from 47,964 to 53,262 firms, with an exception of the Creation and Production/Publishing functions. On a ranking position of the total number of firms the Preservation is ahead, followed by Management/Regulation, being on the last place the Education function with lower number of firms. Most of the firms are micro-enterprises (98% of the total number of CCI

firms in all years of the analyzed period). The small firms correspond circa to 1.20% of the full sample, while the medium firms has an approximate weigh of 0.14%, and the large ones has a roughly weigh lower than 0.03%. Despite of CCI increase, and considering the general firms' size, the access to finance is mentioned as the main barrier to their development and the reason why that the government funds be an essential financial source.

The effects of the macroeconomic context on the characteristics and performance of CCI firms are:

(i) Independently the cyclical indicator (real GDP growth rate; unemployment change rate) used to measure the macroeconomic context, on good years we verified an increase of the 'entering' or born firms and, on the most non-favorable period we observed an increase of 'exiting' or death.

(ii) The average size of continuing firms are higher than the born and consequently the death firms. These result is also consistent with the analyze of the evolution of the number of firms, and despite of a general increase of these firms over the period of analyze it is clear that the continuing firms have more weigh over the total number of firms in relation to the born and death.

(iii) Mostly financial ratios of CCI firms exhibit a clear tendency until 2007-2008 and due to the change of the macroeconomic context (economic and financial crisis started in United States of American at the end of 2007), on the period immediately after the tendency assume an opposite direction.

By analyzing the transfers we conclude that over the period of analyze the granted subsidies doubled and after 2008 the taxes decreased, being approximately 67% of the

subsidies. On a cross-section analyze, Education received more subsidies and paid less taxes. At a regional level, Lisbon Metropolitan Area present higher value of both (subsidies and taxes). On the opposite, Madeira received less subsidies and that Alentejo paid less taxes. The Kaplan-Meier survival curves for subsidized and non-subsidized firms present inconclusive outcomes. Only for the firms born in 2006, the granted subsidies had impact on the survival rates positively, being higher after 2008 and it is likely that this is a results from the macroeconomic context. This outcomes also suggest that the subsidies improve the survival of the firms only in periods of downturn.

The results concerning to the evolution of some measures during the period of analyze, obtained by descriptive analysis, lead us to conclude that all - size (employees), turnover (turnover), GVA at factor costs (GVAfc) and at market prices (GVAmp) – decrease from 2004 to 2011. The annual descriptive analyzes lead us to conclude that 2008 were the turning point year because, as well as the financial ratios, there are evidences of an increase trend until 2008 and further this year the opposite occurs. Apart of the stable evolution of the weights of these indicators, CCI represent approximately 2.4% of employees, 1.9% of turnover, and circa 2% of both GVA at factor costs and at market prices in relation of the business economy, in average terms. The constant evolution of GVA at factor costs and market prices, indirectly indicates that the net taxes did not change over time differently from the total business, considering that these two indicators differ by the taxes net of subsidies.

The spatial analyze of CCI and regional development were made based on the information from SCIE organized by NUTSII. We conclude that the agglomeration of CCI firms tend to be on the two biggest urban zones: Lisbon Metropolitan Area and North, which meets with the previous literature (Boix et al. 2011; Florida, 2005; Cruz &

Teixeira, 2014). This tendency confirm the argue that these firms take advantage of the urbanized economies (Jacobs, 1976).

New directions for the CCI research

During this investigation we found some limitations and therefore these could be circumvented on further researches. The main limitation of this study is the lack of detailed data for the micro-enterprises since the CCI are mostly composed by these type of firms. Besides of general information concerning profits and costs, this restriction influenced mainly the results of the survival analysis, which could be more precise if it was conducted including as variables the subsidies receipt and the taxes paid to Portuguese government for these firms. Another issue detected on this dissertation is the lack of information regarding to the access to finance of CCI in Portugal. The existence of these was not totally explored.

Considering the limitations of this research and the analysis made on the development of it, we identify different ways to further researches: (i) As a first step, it could be developed a survival analyze where it is also considered the subsidies of the micro-firms; (ii) Moreover, due to the socio-economic and demographic heterogeneity of CCI, the survival analyze should be conducted by the 6 functions and by regions; (iii) Additionally, it should be done a deep analyze of the Portuguese CCI financial funds and accordingly to their financial needs. Once again and for the same reasons, these should be made by the 6 distinct functions and regions; (iv) Another imperative topic related to CCI is the correlation of their financial performance and the external and internal demand as well as their relation to tourism.

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Appendix

TABLE A.I
CCI BY FIRMS' SIZE CATEGORIES (2004-2011)

	2004		2005		2006		2007		2008		2009		2010		2011	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Micro	47,278	98.57	49,078	98.59	50,150	98.56	54,861	98.64	57,354	98.64	55,680	98.66	52,834	98.65	52,579	98.72
Small	587	1.22	603	1.21	639	1.26	662	1.19	698	1.20	665	1.18	645	1.20	614	1.15
Medium	84	0.18	83	0.17	82	0.16	80	0.14	79	0.14	77	0.14	63	0.12	56	0.11
Large	15	0.03	15	0.03	14	0.03	13	0.02	14	0.02	12	0.02	14	0.03	13	0.02
Total	47,964	100.00	49,779	100.00	50,885	100.00	55,616	100.00	58,145	100.00	56,434	100.00	53,556	100.00	53,262	100.00

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.II
CCI BY CREATIVE FUNCTIONS (2004-2011)

	2004		2005		2006		2007		2008		2009		2010		2011	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Creation	7,869	16.41	7,925	15.92	7,867	15.46	7,938	14.27	7,959	13.69	7,588	13.45	7,072	13.20	6,827	12.82
Production / Publishing	4,065	8.48	4,189	8.42	4,220	8.29	4,987	8.97	4,988	8.58	4,481	7.94	4,183	7.81	3,907	7.34
Dissemination / Trade	417	0.87	422	0.85	428	0.84	433	0.78	443	0.76	450	0.80	445	0.83	464	0.87
Preservation	17,796	37.10	18,759	37.68	19,453	38.23	21,298	38.29	22,645	38.95	22,264	39.45	21,597	40.33	21,043	39.51
Education	63	0.13	72	0.14	76	0.15	83	0.15	121	0.21	162	0.29	176	0.33	215	0.40
Management / Regulation	17,754	37.02	18,412	36.99	18,841	37.03	20,877	37.54	21,989	37.82	21,489	38.08	20,083	37.50	20,806	39.06
Total	47,964	100.00	49,779	100.00	50,885	100.00	55,616	100.00	58,145	100.00	56,434	100.00	53,556	100.00	53,262	100.00

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.III

CULTURAL CREATIVE ACTIVITIES WITH CAE REV.3 CLASSES BY FUNCTIONS

Functions (Categories)	CAE – Rev. 3	Denomination	N (2004)[(a)]	N (2011)[(a)]
Creation	47610	Retail sale of books in specialised stores		
	47620	Retail sale of newspapers and stationery in specialised stores		
	47630	Retail sale of music and video recordings in specialised stores		
			7,869	6,827
Production / Publishing	58110	Book publishing		
	58130	Publishing of newspapers		
	58140	Publishing of journals and periodicals		
	58210	Publishing of computer games		
	59110	Motion picture, video and television programme production activities		
	59120	Motion picture, video and television programme post-production activities		
	59130	Motion picture, video and television programme distribution activities		
	59140	Motion picture projection activities		
	59200	Sound recording and music publishing activities		
			4,065	3,907
Dissemination / Trade	60100	Radio broadcasting		
	60200	Television programming and broadcasting activities		
	63910	News agency activities		
			417	464
Preservation	71110	Architectural activities		
	73110	Advertising agencies		
	74100	Specialised design activities		
	74200	Photographic activities		
	74300	Translation and interpretation activities		
	77220	Rental of video tapes and disks		
			17,796	21,043
Education	85520	Cultural Education		
			63	215
Management / Regulation	90010	Performing arts		
	90020	Support activities to performing arts		
	90030	Artistic creation		
	90040	Operation of arts facilities		
	91010	Library and archives activities		
	91020	Museums activities		
	91030	Operation of historical sites and buildings and similar visitor attractions		
			17,754	20,806
Total			47,964	53,262

(a)Author's calculation based on SCIE microdata (N=100,122).

Source: ESSnet-Culture (2012), adapted.

TABLE A.IV

AVERAGE SIZE OF BORN, DEATH & CONTINUING FIRMS (2004-2011)

		2004	2005	2006	2007	2008	2009	2010	2011
Total number of firms		47,964	49,779	50,885	55,616	58,145	56,434	53,556	53,262
Born	N	7,254	7,456	7,785	9,726	9,151	7,164	6,498	7,326
	$\bar{x}$	1,13	1.12	1.12	1.09	1.14	1.12	1.11	1.10
	σ	1.40	1.22	0.73	0.61	1.07	0.85	0.75	0.63
Death	N	5,456	6,184	5,382	6,712	8,590	11,191	n.a.	n.a.
	$\bar{x}$	1.11	1.16	1.19	1.12	1.13	1.12	n.a.	n.a.
	σ	1.49	1.10	4.26	1.05	1.61	1.83	n.a.	n.a.
Continuing	N	36,676	37,675	39,052	41,089	42,458	40,316	n.a.	n.a.
	$\bar{x}$	2.00	2.00	1.98	1.96	1.96	1.94	n.a.	n.a.
	σ	10.39	10.27	10.08	9.90	10.62	9.37	n.a.	n.a.

n.a.: not available data (INE, 8-year period of analyze, xls data)

Source: Lee, Y., & Mukoyama, T. (2015), adapted. Author's calculation based on SCIE microdata (N=100,122).

TABLE A.V

RELATIVE SIZE OF BORN AND DEATH FIRMS (2004-2011)

		2004	2005	2006	2007	2008	2009	2010	2011
Relative Size	Born	0.565	0.560	0.566	0.556	0.582	0.577	n.a.	n.a.
	Death	0.555	0.580	0.601	0.571	0.577	0.577	n.a.	n.a.

n.a.: not available data (INE, 8-year period of analyze, xls data)

Source: Lee, Y., & Mukoyama, T. (2015), adapted. Author's calculation based on SCIE microdata (N=100,122).

TABLE A.VI

AVERAGE AND RELATIVE SIZE OF BORN AND DEATH FIRMS ACCORDING TO REAL GDP GROWTH RATE

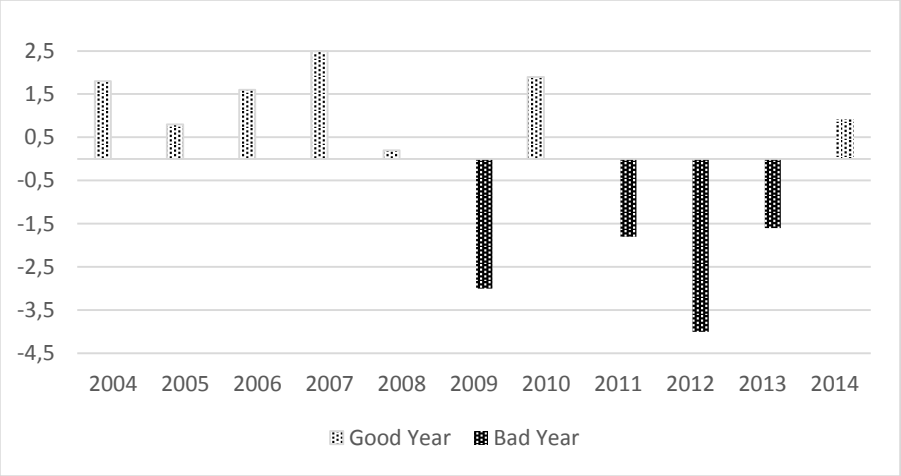
		Good	Bad	Total Average
Average size	Born	1.120	1.120	1.120
	Death	1.142	1.120	1.131
Relative size	Born	0.566	0.577	0.572
	Death	0.577	0.577	0.577

Note: The good years correspond to 2004, 2005, 2006, 2007 and 2008. The bad years correspond to the 2009 year. There is no available data for 2010 and 2011 year, therefore these years were exclude from this analyze.

Source: Lee, Y., & Mukoyama, T. (2015), adapted. Author's calculation based on SCIE microdata (N=100,122).

FIGURE B.I

PORTUGUESE REAL GDP GROWTH RATE (2004-2014)

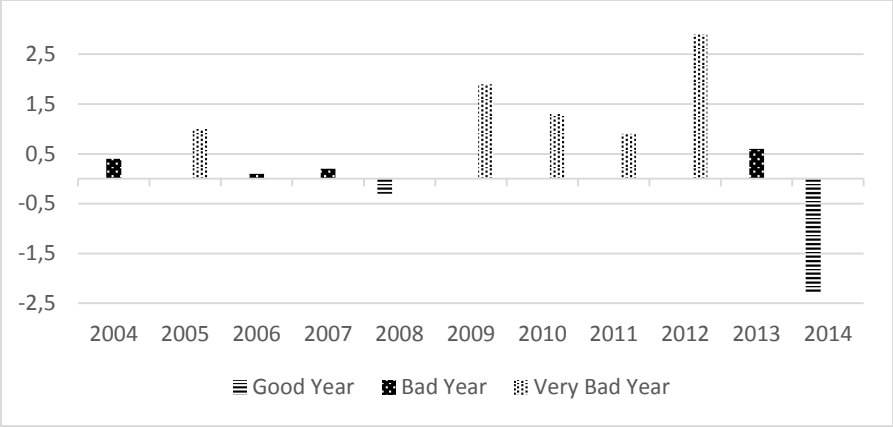


Note: If the real GDP growth rate for a certain year is positive (negative) it is consider a good (bad) year. The good years correspond to 2004, 2005, 2006, 2007, 2008, 2010 and 2014. The bad years correspond to 2009, 2011, 2012 and 2013.

Source: Eurostat.

FIGURE B.II

PORTUGUESE UNEMPLOYMENT RATE CHANGE (2004-2014)



Note: A good, bad and very bad year is considered when the unemployment rate change presents a negative variation, positive variation but lower than 7.5% and a positive variation higher than 7.5%, respectively. The good years correspond to 2008 and 2014. The bad years correspond to 2004, 2006, 2007 and 2013. The very bad years corresponds to 2005, 2009, 2010, 2011 and 2012.
Source: Eurostatt.

TABLE A.VII

ENTRY AND EXIT RATES ACCORDING TO CYCLICAL INDICATORS

Cyclical Indicator		Good (%)	Bad (%)	Very Bad (%)	Total Average (%)
[1] Real GDP growth rate	Entry Rate (born)	15.71	12.69	n.a	14.20
	Exit Rate (death)	12.24	19.83	n.a	16.04
[2] Unemployment Rate change	Entry Rate (born)	15.74	15.95	13.84	15.18
	Exit Rate (death)	14.77	11.34	16.13	14.08

n.a.: not available data

Note: Entry (exit) rate is determined by the born (death) number of firms as a percentage of total number of firms of each period. [1] The division of good and bad years is based on the Real GDP growth rate, i.e., whether this indicator increases or decreases. [2] When the division is based on the Unemployment Rate Change it is added another macroeconomic context (very bad years). The years when the Unemployment Rate change is negative it is consider as a good year, when it is positive but the percentage change lower than 7.5 it is consider a bad year, and when the negative variation is higher than 7.5 the year is consider very bad.
Source: Lee, Y., & Mukoyama, T. (2015), adapted. Author's calculation based on SCIE microdata (N=100,122).

TABLE A.VIII

FINANCIAL RATIOS DESCRIPTIVES (2004-2011)

		2004	2005	2006	2007	2008	2009	2010	2011
Debt to Equity Ratio	N	11,546	11,801	12,187	12,802	13,510	13,733	13,680	13,936
	$\bar{x}$	-159.30	5.48	1.36	0.73	1.49	2.74	2.03	-1.26
	σ	14,400	161	141	128	215	144	80	465
Financial Autonomy	N	11,520	11,755	12,177	12,749	13,434	13,623	13,597	13,817
	$\bar{x}$	-0.79	-0.82	-0.51	-2.32	-3.05	-0.70	-1.38	-2.68
	σ	26	22	13	111	184	17	44	70
Investment Rate	N	11,508	11,757	12,046	12,667	13,373	13,626	13,646	13,888
	$\bar{x}$	-93.34	-72.41	69.05	139.11	56.43	290.42	-17.29	2.20
	σ	4,219	3,924	5,163	13,613	3,559	18,805	7,413	4,660

Return on Assets	N	11,520	11,755	12,177	12,749	13,434	13,623	13,597	13,817
	$\bar{x}$	-42.25	-30.62	-20.76	-160.65	-105.87	-36.12	-74.37	-255.49
	σ	2,754	736	260	9,812	4,625	672	3,222	13,508
Return on Equity	N	11,546	11,801	12,187	12,802	13,510	13,733	13,680	13,936
	$\bar{x}$	1,447.85	-51.72	-0.61	60.88	21.22	-33.30	0.14	-17.23
	σ	153,339	4,421	2,080	5,888	2,438	3,724	1,772	3,764
Return on Sales	N	10,792	11,024	11,360	11,831	12,483	12,641	12,687	12,832
	$\bar{x}$	-176.46	-140.19	-112.43	-53.80	-50.00	-75.00	-136.60	-80.86
	σ	14,231	8,495	4,574	1,077	550	971	7,882	1,876
Assets Rotation	N	11,520	11,755	12,177	12,749	13,434	13,623	13,597	13,817
	$\bar{x}$	1.71	1.87	1.45	4.45	2.32	1.57	1.71	10.49
	σ	10	38	3	256	64	8	12	762
Equity Rotation	N	11,546	11,801	12,187	12,802	13,510	13,733	13,680	13,936
	$\bar{x}$	-3.68	6.29	4.44	2.78	198	2.09	2.97	-0.45
	σ	848	162	149	167	209	252	63	482

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.IX
CCI BY FIRM'S STATUS (2004-2011)

	2004		2005		2006		2007		2008		2009		2010		2011	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Born	7,254	14.69	7,456	14.53	7,758	14.86	9,726	16.91	9,151	15.20	7,164	12.21	n.a.	n.a.	n.a.	n.a.
Death	5,456	11.05	6,184	12.05	5,382	10.31	6,712	11.67	8,590	14.27	11,191	19.07	n.a.	n.a.	n.a.	n.a.
Continuing	36,676	74.26	37,675	73.42	39,052	74.82	41,089	71.43	42,458	70.53	40,316	68.72	n.a.	n.a.	n.a.	n.a.
Total	49,386	100.00	51,315	100.00	52,192	100.00	57,527	100.00	60,199	100.00	58,671	100.00	53,556	100.00	53,262	100.00

Source: Author's calculation based on SCIE microdata (N=100,122).

FIGURES B.
SURVIVAL ANALYSIS (FIRMS BORN IN 2004, 2005 AND 2006)

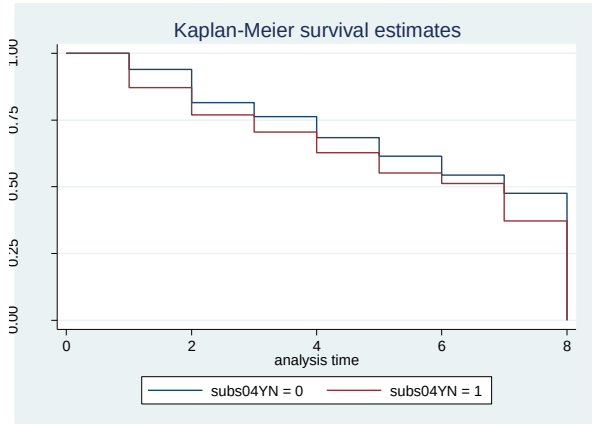


Fig. III Kaplan-Meier survival estimates (firms born in 2004; period 2004-2011)

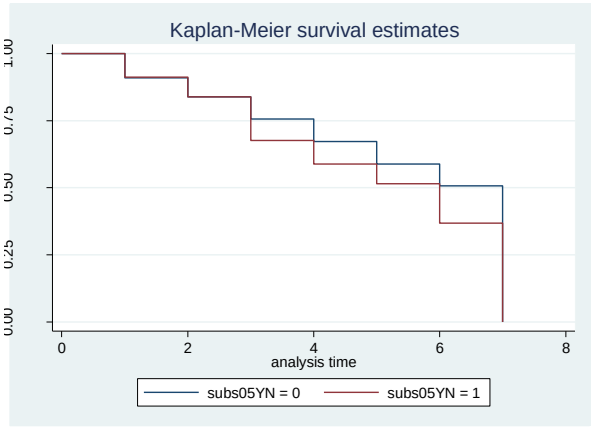


Fig. IV Kaplan-Meier survival estimates (firms born in 2005; period 2005-2011)

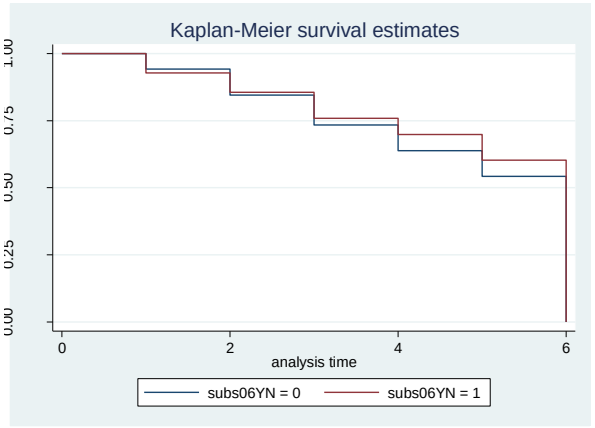
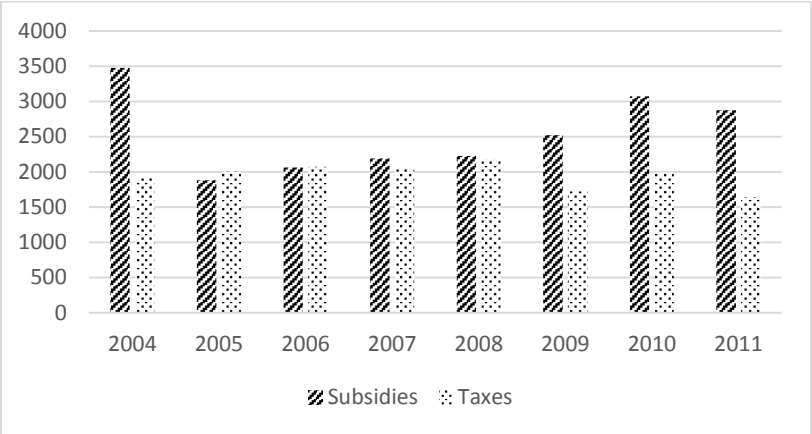


Fig. V Kaplan-Meier survival estimates (firms born in 2006; period 2006-2011)

Source: Author's calculation based on SCIE microdata.

FIGURES B.VI

PERCENTAGE OF CCI FIRMS ON BUSINESS CYCLE (2004-2011)



Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.X

AVERAGE OF FINANCIAL TRANSFERS BY CREATIVE FUNCTIONS (2004-2011)

		2004	2005	2006	2007	2008	2009	2010	2011
Subsidies	Creation	123	76	107	124	120	117	138	144
	Production & Publishing	4,940	4,276	4,383	4,712	5,523	5,956	5,362	5,164
	Dissemination & Trade	43,450	2,142	1,742	1,980	1,513	1,343	1,954	1,498
	Preservation	596	286	312	381	379	721	744	642
	Education	29,169	26,569	31,138	36,913	31,861	28,854	34,331	30,210
	Management & Regulation	13,032	11,329	13,488	13,071	11,069	11,075	17,528	15,195
	Total	3,474	1,881	2,062	2,192	2,229	2,522	3,070	2,878
Taxes	Creation	364	396	406	464	463	445	539	414
	Production & Publishing	2,465	2,175	2,200	2,450	2,449	2,067	2,152	1,928
	Dissemination & Trade	4,929	3,348	5,388	3,989	4,541	4,863	13,551	5,553
	Preservation	2,254	2,539	2,538	2,490	2,625	1,951	1,931	1,839
	Education	229	227	191	201	388	206	386	227
	Management & Regulation	1,664	2,074	2,062	1,813	2,114	1,638	1,958	1,449
	Total	1,924	2,004	2,072	2,051	2,171	1,723	1,991	1,641

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XI

AVERAGE OF FINANCIAL TRANSFERS BY CREATIVE FUNCTIONS (2004-2011)

		2004	2005	2006	2007	2008	2009	2010	2011
Subsidies	North	1,593	1,734	1,852	1,647	1,791	2.408	2,165	2,012
	Algarve	236	299	325	363	339	733	587	385
	Center	895	996	1,197	1,580	1,736	2,517	2,628	2,509
	Lisbon Metropolitan Area	5,645	2,431	2,704	2,965	2,938	2,962	4,095	3,727
	Alentejo	1,082	873	1,102	1,008	728	881	2,026	2,989
	Azores	2,998	2,897	1,713	2,399	2,901	2,434	2,409	4,134
	Madeira	198	518	283	210	219	296	940	697
	Total	3,474	1,881	2,062	2,192	2,229	2,522	3,070	2,878

Taxes	North	1,115	1,000	1,263	1,164	1,243	1,028	1,150	1,017
	Algarve	1,129	1,966	1,503	1,289	1,848	1,426	959	925
	Center	543	635	767	841	816	863	850	760
	Lisbon Metropolitan Area	2,933	3,096	3,112	3,124	3,315	2,544	3,075	2,471
	Alentejo	443	345	453	447	407	450	640	537
	Azores	537	740	688	1,068	682	765	572	529
	Madeira	859	616	537	609	591	648	711	528
	Total	1,924	2,004	2,072	2,051	2,171	1,723	1,991	1,641

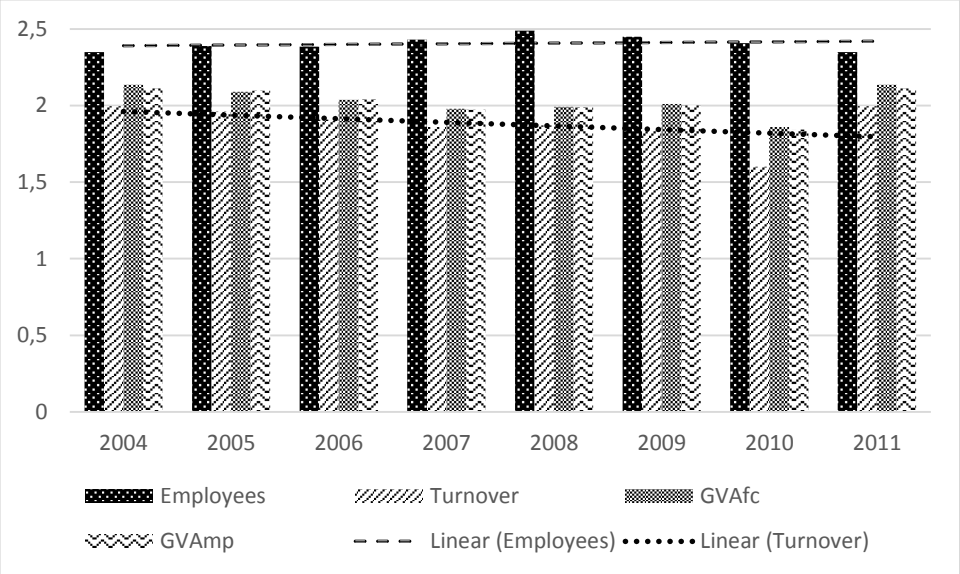
Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XII
STATISTICS (2004-2011)

	2004	2005	2006	2007	2008	2009	2010	2011
Employees	86,224	89,183	91,109	96,579	101,108	96,459	92,549	90,656
Turnover	6,101,614,364	6,209,197,797	6,339,876,871	6,665,993,201	6,960,430,192	6,265,250,158	5,707,133,135	5,211,32,.791
GVAfc	1,468,495,149	1,471,651,355	1,510,850,265	1,592,757688	1,634,702,501	1,597,137,522	1,500,077,157	1,390,338,494
GVAmp	1,450,392,814	1,473,133,058	1,510,972,446	1,590,946,401	1,633,913,243	1586134,406	1,485,261,529	1,373,036,036

Source: Author's calculation based on SCIE microdata (N=100,122).

FIGURES B.VII
PERCENTAGE OF CCI FIRMS ACROSS BUSINESS CYCLE (2004-2011)



Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XIII
ANOVA-TEST BY CREATIVE FUNCTIONS (2004-2011)

	2004			2005			2006			2007			2008			2009			2010			2011		
	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.
Employees	5	74.31	0.00	5	73.94	0.00	5	76.21	0.00	5	73.46	0.00	5	80.97	0.00	5	86.41	0.00	5	113.24	0.00	5	114.51	0.00
Turnover	5	132.64	0.00	5	142.03	0.00	5	143.75	0.00	5	135.05	0.00	5	121.00	0.00	5	153.23	0.00	5	150.86	0.00	5	154.24	0.00
GVAfc	5	25.77	0.00	5	27.63	0.00	5	26.60	0.00	5	27.25	0.00	5	25.70	0.00	5	24.33	0.00	5	27.27	0.00	5	30.66	0.00
GVAmp	5	23.74	0.00	5	27.34	0.00	5	26.39	0.00	5	26.96	0.00	5	25.36	0.00	5	24.22	0.00	5	27.30	0.00	5	30.62	0.00

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XIV
ANOVA-TEST BY FIRM'S SIZE CATEGORIES (2004-2011)

	2004			2005			2006			2007			2008			2009			2010			2011		
	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.
Employees	3	11044.66	0.00	3	10306.10	0.00	3	10117.75	0.00	3	10782.11	0.00	3	9752.20	0.00	3	13518.98	0.00	3	14327.79	0.00	3	17125.53	0.00
Turnover	3	83697.10	0.00	3	93406.27	0.00	3	93379.78	0.00	3	112501.34	0.00	3	102551.91	0.00	3	112307.46	0.00	3	125580.29	0.00	3	116962.84	0.00
GVAfc	3	3757.73	0.00	3	3436.88	0.00	3	3135.39	0.00	3	3337.65	0.00	3	2383.58	0.00	3	2377.60	0.00	3	2015.62	0.00	3	2283.55	0.00
GVAmp	3	3337.66	0.00	3	3450.84	0.00	3	3124.36	0.00	3	3318.64	0.00	3	2370.73	0.00	3	2373.80	0.00	3	1970.82	0.00	3	2230.25	0.00

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XV
ANOVA-TEST BY REGIONS (2004-2011)

	2004			2005			2006			2007			2008			2009			2010			2011		
	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.	df	F	Sig.
Employees	6	8.21	0.00	6	8.48	0.00	6	9.28	0.00	6	9.68	0.00	6	10.91	0.00	6	10.06	0.00	6	8.73	0.00	6	7.83	0.00
Turnover	6	4.46	0.00	6	5.10	0.00	6	5.88	0.00	6	5.77	0.00	6	6.60	0.00	6	6.70	0.00	6	7.10	0.00	6	6.17	0.00
GVAfc	6	4.81	0.00	6	4.75	0.00	6	4.86	0.00	6	5.36	0.00	6	5.08	0.00	6	4.15	0.00	6	3.92	0.00	6	4.02	0.00
GVAmp	6	4.62	0.00	6	4.78	0.00	6	4.87	0.00	6	5.35	0.00	6	5.07	0.00	6	4.16	0.00	6	3.84	0.00	6	3.98	0.00

Source: Author's calculation based on SCIE microdata (N=100,122).

TABLE A.XVI

WEIGH OF CREATIVE FUNCTIONS AND REGIONS (2004-2011)

		2004		2005		2006		2007		2008		2009		2010		2011	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Norte	Creation	2,492	21.88	2,535	2.,96	2,587	20.64	2,613	18.97	2,579	17.76	2,477	17.46	2,314	17.06	2,264	16.58
	Production & Publishing	848	7.44	917	7.58	904	7.21	1,144	8.30	1,097	7.56	960	6.77	905	6.67	836	6.12
	Dissemination & Trade	93	0.82	91	0.75	90	0.72	92	0.67	94	0.65	92	0.65	97	0.72	96	0.70
	Preservation	4,601	40.39	4,912	40.61	5,043	40.24	5,582	40.52	6,014	41.42	5,995	42.26	5,875	43.32	5,817	42.59
	Education	21	0.18	23	0.19	28	0.22	30	0.22	45	0.31	65	0.46	74	0.55	92	0.67
	Management & Regulation	3,337	29.29	3,618	29.91	3,880	30.96	4,314	31.32	4,690	32.30	4,596	32.40	4,296	31.68	4,552	33.33
	Total	11,392	100.00	12,096	100.00	12,532	100.00	13,775	100.00	14,519	100.00	14,185	100.00	13,561	100.00	13,657	100.00
Algarve	Creation	2,535	20.96	406	17.53	399	16.69	396	14.59	400	14.08	400	14.38	365	14.19	357	14.46
	Production & Publishing	917	7.58	133	5.74	130	5.44	189	6.96	188	6.62	166	5.97	151	5.87	134	5.43
	Dissemination & Trade	91	0.75	20	0.86	20	0.84	20	0.74	19	0.67	21	0.76	20	0.78	20	0.81
	Preservation	4,912	40.61	845	36.49	912	38.14	1,012	37.29	1,082	38.09	1,051	37.79	998	38.79	956	38.72
	Education	23	0.19	2	0.09	1	0.04	1	0.04	2	0.07	5	0.18	5	0.19	9	0.36
	Management & Regulation	3,618	29.91	910	39.29	929	38.85	1,096	40.38	1,150	40.48	1,138	40.92	1,034	40.19	993	40.22
	Total	12,096	100.00	2,316	100.00	2,391	100.00	2,714	100.00	2,841	100.00	2,781	100.00	2,573	100.00	2,469	100.00
Centro	Creation	1,580	23.02	1,610	22.09	1,556	20.67	1,579	18.84	1,590	18.00	1,505	17.64	1,394	16.77	1,329	16.13
	Production & Publishing	532	7.75	570	7.82	553	7.35	758	9.04	750	8.49	606	7.10	529	6.36	444	5.39
	Dissemination & Trade	104	1.51	103	1.41	106	1.41	109	1.30	112	1.27	112	1.31	106	1.28	107	1.30
	Preservation	2,416	35.19	2,550	34.98	2,703	35.92	2,966	35.39	3,184	36.05	3,126	36.64	3,157	37.98	3,083	37.42
	Education	11	0.16	13	0.18	11	0.15	13	0.16	18	0.20	24	0.28	29	0.35	34	0.41
	Management & Regulation	2,222	32.37	2,444	33.53	2,597	34.51	2,956	35.27	3,177	35.98	3,159	37.03	3,098	37.27	3,241	39.34
	Total	6,865	100.00	7,290	100.00	7,526	100.00	8,381	100.00	8,831	100.00	8,532	100.00	8,313	100.00	8,238	100.00
Lisbon Metropolitan Area	Creation	2,662	11.30	2,644	11.01	2,606	10.73	2,624	9.98	2,666	9.78	2,504	9.53	2,342	9.50	2,256	9.18
	Production & Publishing	2,329	9.88	2,333	9.71	2,372	9.77	2,580	9.82	2,621	9.61	2,437	9.28	2,317	9.40	2,234	9.09

	Dissemination & Trade	122	0.52	125	0.52	122	0.50	127	0.48	138	0.51	146	0.56	146	0.59	157	0.64
	Preservation	8,793	37.31	9,188	38.25	9,480	39.05	10,318	39.26	10,864	39.84	10,549	40.16	10,052	40.77	9,731	39.61
	Education	28	0,12	30	0,12	30	0,12	31	0,12	46	0,17	57	0,22	55	0,22	70	0,28
	Management & Regulation	9,632	40.87	9,699	40.38	9,669	39.82	10,600	40.33	10,931	40.09	10,575	40.26	9,742	39.51	10,116	41.18
	Total	23,566	100.00	24,019	100.00	24,279	100.00	26,280	100.00	27,266	100.00	26,268	100.00	24,654	100.00	24,564	100.00
	Creation	542	25.58	543	24.86	533	23.66	542	21.93	542	21.02	530	20.39	490	19.80	453	18.59
	Production & Publishing	130	6.13	135	6.18	147	6.52	175	7.08	179	6.94	170	6.54	148	5.98	140	5.74
	Dissemination & Trade	42	1.98	41	1.88	45	2.00	44	1.78	41	1.59	42	1.62	41	1.66	50	2.05
Alentejo	Preservation	649	30.63	689	31.55	718	31.87	792	32.05	835	32.39	862	33.17	857	34.63	834	34.22
	Education	1	0.05	3	0.14	4	0.18	5	0.20	5	0.19	5	0.19	7	0.28	6	0.25
	Management & Regulation	755	35.63	773	35.39	806	35.77	913	36.95	976	37.86	990	38.09	932	37.66	954	39.15
	Total	2,119	100.00	2184	100.00	2,253	100.00	2,471	100.00	2,578	100.00	2,599	100.00	2,475	100.00	2,437	100.00
	Creation	58	8.24	60	7.94	57	7.65	56	6.89	60	6.73	58	6.52	56	6.41	59	6.92
	Production & Publishing	53	7.53	47	6.22	52	6.98	71	8.73	83	9.30	82	9.21	77	8.82	69	8.10
	Dissemination & Trade	14	1.99	14	1.85	16	2.15	16	1.97	16	1.79	16	1.80	15	1.72	14	1.64
Azores	Preservation	235	33.38	249	32.94	253	33.96	277	34.07	296	33.18	296	33.26	308	35.28	302	3545
	Education	0	0.00	0	0.00	0	0.00	1	0.12	1	0.11	2	0.22	2	0.23	2	0.23
	Management & Regulation	344	48.86	386	51.06	367	49.26	392	48.22	436	48.88	436	48.99	415	47.54	406	4765
	Total	704	100.00	756	100.00	745	100.00	813	100.00	892	100.00	890	100.00	873	100.00	852	100.00
	Creation	119	10.91	127	11.36	129	11.13	128	10.83	122	10.02	114	9.67	111	10.03	109	10.43
	Production & Publishing	49	4.49	54	4.83	62	5.35	70	5.92	70	5.75	60	5.09	56	5.06	50	4.78
	Dissemination & Trade	23	2.11	28	2.50	29	2.50	25	2.12	23	1.89	21	1.78	20	1.81	20	1.91
Madeira	Preservation	311	28.51	326	29.16	344	29.68	351	29.70	370	30.38	385	32.65	350	31.62	320	30.62
	Education	1	0.09	1	0.09	2	0.17	2	0.17	4	0.33	4	0.34	4	0.36	2	0.19
	Management & Regulation	588	53.90	582	52.06	593	51.16	606	51.27	629	51.64	595	50.47	566	51.13	544	52.06
	Total	1,091	100.00	1,118	100.00	1,159	100,00	1,182	100	1,218	100,00	1,179	100,00	1,107	100,00	1,045	100,00

Source: Author's calculation based on SCIE microdata.