

EVALUATION OF THE ECONOMIC IMPACT OF BUSINESS BUYOUTS FUNDED BY THE BPIFRANCE GUARANTEE FUND

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Mathilde Lê

Bpifrance, Evaluation, Studies and Prospecting Division (DEEP), Evaluation unit

Abstract

This study was conducted under the supervision of a steering committee including Bpifrance, the French Government (DG Trésor) and independent economists/researchers specialised in the evaluation of public policies. This is part of the massive evaluation of Bpifrance guarantees started in 2019. This study aims to assess the economic impact of guarantees covering business buyouts that focuses on business transfers. The selected method is a propensity scores matching combined with a difference in differences approach where the businesses purchased and awarded a guaranteed bank loan are compared with similar companies without such a guarantee, regardless of whether or not a buyout occurs. This study was supported by a large-scale literature review and several databases: individual data on the companies benefitting from the Bpifrance guarantee, all announced business sales and transfers published in the Bodacc and complementary databases accessed *via* the CASD (Insee tax documents, Sine survey).

This evaluation is unprecedented considering the study of the scope of the business buyout. This leads to several conclusions.

On the one hand, the descriptive analyses indicate that, when compared with other buyout projects funded by these parties, banks obtain the “buyout” guarantee to acquirers with a relatively high-risk profile, mainly first-time new businesses (77 % vs. 73 %), located in less urban areas (31 % are located in low-density municipalities versus 27 % for other acquirers) with less activity in terms of transfers and jobs.

On the other hand, the econometric analysis suggests that this approach will help to boost investment (an additional 8,000 and 9,000 euros invested), promote growth in revenues (an additional 22,000 - 32,000 euros in turnover) and GOS (an additional 4,000 - 5,000 euros in GOS), and improve both apparent labour productivity and the survival of beneficiary companies (business closure rates are lower for the companies supported, down by -2.1 and -3.8 percent) over the coming 3 years when compared to non-beneficiary companies with initial similar profiles (not necessarily transmitted).

In addition, the scale of these impacts would appear greater for executives nearing retirement age and projects with a higher guaranteed loan (although no cause-effect link can be established for these profiles and the scale of impact).

Finally, complementary testing suggests that the policy effects on total losses, growth in revenues and GOS, and on the level of operational productivity disappear if we compare companies supported with those without a support that have been actually purchased and which consequently managed to obtain funding (without a Bpifrance guarantee) for the business buyout. This lack of impact could suggest that the policy effects are mainly triggered by the acquisition of funding rather than ultimately by the conclusion of the planned buyout which could not be assessed *via* this test (all companies in the “control” panel were previously purchased). In addition, these results would tend to rule out the hypothesis of adverse selection or moral hazard by banks using this approach, given that the beneficiaries appear to have a relatively “fragile” profile (if the target company for the acquisition has similar characteristics): in all other cases, a less healthy economic result on performance and on survival rate would be expected theoretically.

Nonetheless, it is important to highlight the limits of this study. The first limit depends on non-observable factors which could jointly influence the future performance and the probability of selling a business and benefitting from the guarantee (and cannot be evaluated here, such as the personal profile of the transferor). The second limit involves the estimation of the propensity score by modelling several effects: (i) opting to sell the company rather than close or continue business in the Q (ii) selling the company in the Q (iii) the company obtained a guarantee as part of the funding in the Q. This combination of effects is still complex to understand considering the available variables: the individual profile of the executive is not disclosed other than his or her age. On this basis, it is difficult to determine the dominant effects in this estimation process. The last limit is related to the fact that this approach exclusively focuses on the economic impact of the policy for the acquired company and does not assess the potential economic effects of the policy obtained *via* the transferor, who is ultimately likely to invest with the backing of a guaranteed loan (the income from the sale is invested in the economy).

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Introduction

The consequences of the COVID-19 crisis could lead to increased financial difficulties for businesses, once the exceptional assistance provided has been withdrawn. **Considering these difficulties, some executives may decide to sell their businesses** in order to recover a percentage of their investment (in most cases, Hotel and Catering businesses took out loans to acquire a business) and/or to offset the losses of their creditors. As a result, these businesses might take part of the growing list of companies whose executives are preparing to retire and (potentially) sell their businesses. In fact, according to one study by the Observatoire BPCE in 2017, executives have aged in recent years due to the changing demographics of the population. **In this context, business buyouts are a key economic question**, in terms of continued business and refreshing the economic landscape.

However, academic literature highlights funding problems faced on the buyout market. **These funding problems may be related to various causes:** (i) the cost of obtaining information, as these projects must be analysed from two viewpoints: the historical financial statements of the acquirer, and those of the company to be acquired. This could involve transaction costs which can be complex to depreciate for banks, considering the inherent risk and the small amounts requested particularly for small businesses (European Commission, 2013) (ii) the difficulty of obtaining collateral, since using securities as a guarantee¹ would not appear adequate if the business is struggling economically (Observatoire du Financement, 2015) (iii) the risk related to a “sterile²” debt (OSEO, 2005) that is primarily used to fund the acquisition of the company and is not or not necessarily re-injected into corporate production resources.

Guarantee schemes were launched in response to these difficulties in order to ease the funding of business buyout projects especially for small businesses. These schemes involve providing commercial banks with hedges against the risk of non-repayment for loans granted to SME and increasing the expected profitability of these loans (Gazaniol et L , 2019).

The economic impact of guarantees and more generally the economic impact of support for business buyouts has rarely been covered in academic literature. To our knowledge, no study has focused on this subject, either in France or worldwide. This loophole can be attributed to several problems. On the one hand, business buyout involve various types of operations which require separate analysis for each type: (i) acquiring a business, i.e. when the acquirer purchases part of the company's assets (tangible or intangible assets, lease premiums, customers) and (ii) acquiring company securities, defined as acquiring control of a company *via* a majority shareholding or majority voting rights. The problem of inadequate data for these transactions must also be taken into consideration: (i) no statistical solutions for identifying the transfer of company capital (ii) difficulties in tracking the trajectory of businesses after acquisitions due to a change of the legal unit after completion. Finally, it is complex to understand how the economic impacts of these schemes can be assessed. It appears that, if we compare with the study of schemes for the funding of more traditional operations (new business or expansion of a company), the impacts of a scheme specifically dedicated to business buyouts, based on the performance of the target companies purchased, are exclusively indirect (the financial backing is not invested in the business to acquire capital and finance growth, the cash is transferred to the transferor and invested elsewhere) and probably long-term (as they depend on a new executive, restructuring, but do not necessarily involve any increase in immediately available resources for the beneficiary).

This study aims to provide initial answers in response to these potential impacts, while attempting to overcome all of these difficulties in the optimal manner. This study aims to evaluate the economic impact of the guarantee schemes managed by Bpifrance and intended for business buyouts. This study is part of a vast evaluation scheme for Bpifrance's guarantee funds, which was organised in 2019 with an initial evaluation of *ex-nihilo* creation projects collateralised with the “new business” guarantee fund and the entire “expansion”

¹ Company securities can be used as a guarantee and transferred to the creditor if the borrower fails to repay the loan.

guarantee fund (Gazaniol et Lê, 2019). On this basis, this study completes these initial works, and focuses on buyout operations collateralised by "new business" and "buyout" guarantee funds. Both of these guarantee funds are supported by government provisions, approved as part of budgetary scheme P134, aiming to provide partial hedging for lending risks accepted by commercial banks. This partial hedging can reach 50 % of the amount of the loan for planned buyouts, and covers part of the final loss recognised by the banks if the company fails to repay, after completing debt collection processes.

The economic impacts of this scheme are estimated using propensity score matching techniques, combined with a difference in difference approach. This study focuses on the acquisition of businesses collateralised by these two funds. The results lead to several conclusions:

- Banks require the “buyout” guarantee for acquirers who will experience greater difficulty obtaining funding in principle: generally younger, with less qualifications, with a relatively high percentage of short-term job seekers, and who more frequently report facing difficulty obtaining funding. The companies targeted by these acquirers are also located in relatively less urban segments, which are also less dynamic in terms of business transfers and jobs;
- The impact study highlights several of the effects of the “buyout” guarantee on the corporate beneficiaries over a three-year period. Companies transmitted thanks to a guaranteed loan will increase their tangible investment more than the control group. This extra investment will accompany growth in turnover and gross operating surplus. On the other hand, the effects on jobs are mitigated: the impact was positive in 2013 and 2015 and not significant in 2012 and 2014. This outcome can partially be explained by the high proportion of companies in sectors such as Hotel and Catering where new jobs are limited by the size of the businesses; on the other hand, it can be explained by the high financial input required to start the business and for the necessary investment (e.g. to modernise production resources), which may represent an obstacle to recruitment during the early years. On the other hand, apparent labour productivity will increase more substantially if the acquisition is funded with a guaranteed loan. According to conclusions with respect to survival, it would appear that the closure rate for companies transmitted *via* a guaranteed loan is lower, while the liquidation rate is higher, which could be due to a different liability structure between the two groups² (just like the observations for the new business fund as per the study by Gazaniol et Lê, 2019);
- The impact on older executives (over 50) would appear more substantial, for revenues, GOS, apparent labour productivity and the survival of businesses. Employment-related results are also significant for all groups, unlike those estimated for the entire panel, which were only significant for two cohorts. This analysis was inspired by a publication by Tsurata (2019), studying the ageing population of executives in Japan. According to this study, if all other things being equal, executives nearing retirement age are more likely to liquidate and close their business if they face difficulties finding an acquirer. This is due to various factors: (i) the difficulty of finding an acquirer could lead to legal contingencies for the company, as the executives nearing retirement age would be less likely to repay their financial debts. This effect could lead to a higher level of non-payments for this category of executives (ii) opportunity cost over time would increase with the age of the executive. Older executives are indeed prepared to spend less time seeking out an acquirer when compared with younger executives;
- Finally, complementary testing suggests that the effects of the policy on total losses, growth in revenues and GOS, and on the level of operational productivity, disappear if we compare companies supported with those without support that have been actually purchased and which consequently managed to obtain funding (without a Bpifrance guarantee) for the business buyout. This lack of impact would suggest that the effects of the policy are mainly triggered by the acquisition of funding rather than ultimately by the conclusion of the planned buyout, which could not be assessed *via* this test (all

² The bank can only apply the Bpifrance guarantee if bankruptcy proceedings are launched if the company fails to meet its commitments. This condition mechanically helps to increase the level of bankruptcy proceedings for companies backed with a guaranteed loan (Gazaniol et Lê, 2019);

companies in the "control" panel were previously purchased). In addition, these results would tend to rule out the hypothesis of an adverse selection or a moral hazard effects by banks using this approach, given that the beneficiaries appear to have a relatively "fragile" profile (if the target company for the acquisition has similar characteristics): in all other cases, a less healthy economic result on performance and total losses on survival rate would be expected theoretically.

Nonetheless, this method suffers from certain limits. The first limit depends on non-observable factors which could jointly influence the future performance and the probability of selling a business and benefitting from the guarantee (and cannot be evaluated here, such as the personal profile of the transferor). The second limit involves the estimation of the propensity score by modelling several effects: (i) opting to sell the company rather than close or continue business in the Q (ii) selling the company in the Q (iii) the company obtained a guarantee as part of the funding in the Q. This combination of effects is still complex to understand considering the available variables: the individual profile of the executive is not disclosed other than his or her age. On this basis, it is difficult to determine the dominant effects in this estimation process. Finally, the latter limit is related to the fact that this approach exclusively focuses on the economic impact of the policy for the acquired company. It does not incorporate the potential economic effects of the policy obtained *via* the transferor who is ultimately likely to invest with the backing of a guaranteed loan (the income from the sale is invested in the economy). It is indeed complicated to obtain data on the future of the transferor (natural person) after the purchase of their business.

The working document comprises four sections. The first section aims to establish a literature review in the field of business buyouts, aiming to study the theoretical benefits of these operations and obstacles on the market. The second section describes the "buyout" guarantee and aims to analyse revenue and the expected impacts of the scheme. The following section focuses on describing the method used and the inherent limits. Finally, the final section focuses on the economic impacts of the guarantee scheme, estimated within the scope of business buyouts.

1. Literature review

1.1 Theoretical benefits of business buyouts

According to economic literature, business buyouts are beneficial for various reasons:

- **Ensure the long-term survival of economically-viable companies,** retaining a workforce and the company's productive capital. Priorities could be particularly important at regional level, and especially in mainly "rural" regions where business buyouts could maintain certain local activities and, ultimately guarantee the economic appeal of these regions (Insee Analyses Occitanie, 2018; Dombre-Costes, 2015).

Still referring to survival, several studies (Counot et Mulic, 2004; Van Teeffelen, 2012) compared the long-term survival of transmitted companies with those of new businesses (with all other conditions unchanged). This comparison can be worthwhile as the acquisition of companies and the creation of new businesses would appear to satisfy the same objectives in terms of entrepreneurial dynamics. The results of these studies suggest that the survival rate is higher for transmitted companies, for several reasons: (i) unlike the entrepreneur launching a new business, the acquirer buys a company with a tried and tested geographic location, and existing customers and production resources (Deschamps et Paturel, 2005), which can improve the survival of the company, (ii) the transferor can train the acquirer in the field and their new role as an executive.

- **Boost the production environment by changing executives.** This change can be reflected in many ways:
 - **Renew investment** (Werner et al. 2019), with, for example, the introduction of innovative techniques and products (Van Teeffelen, 2010; Meijaard's et al., 2005). In addition, McClelland, Barker et Oh (2011) demonstrate that executives reaching the end of their career, and therefore at an age where they are likely to transfer their business, adopt a more risk-averse behaviour which could negatively affect the company performance. They would be likely to limit their long-term investment to secure their assets (and particularly plan

ahead for the risk of not harvesting the fruit of their investment – see Shleifer et Summers, 1988). On the other hand, younger executives facing a longer career would align their personal interests with those of the company and its investment cycle.

Following on from these studies, authors (Erel et al., 2014) focused on the additional investment which companies can accept if they are part of an external growth operation: these companies would benefit from the advantages of the acquiring company on the credit market (if they have a positive rating), which would relax their financial constraints;

- **Improved productivity gains.** These gains can reflect various of the actions undertaken by the executive: organisational changes (Van Teeffelen, 2010) and the achievement of economies of scale (particularly for external growth operations).

Nonetheless, some studies reconsider the benefits associated with changing the executive: according to Haveman et Khaire (2004), changing the company manager could, for example, downgrade organisational performance and/or cause employees to feel insecure;

- **Enhancing human capital from the acquirer's viewpoint.** Buying out a company plays several roles in enhancing human capital:
 - A buyout can be considered as a means of launching a career as an entrepreneur (Sharma et Chrisman, 1999; Deschamps, 2000), allowing some acquirers to gain initial experience as an executive;
 - This approach promotes new jobs for people in the process of a career change and job seekers (Picard, 2006): 20% of acquirers were formerly job seekers according to the SINE survey (2014);
 - Finally, this approach will improve the professional skills of the acquirer if the transferor provides support (passing on expertise): this aspect is critical for manual trades, to give just one example (Picard et Thévenard-Puthod, 2004).
- **Buyouts allow the transferor to re-invest their capital.** Business buyout operations can be seen as asset transfers to the benefit of the transferor. These operations can help them to obtain capital, which will boost the economy when re-invested.

The future of the transferor has not been considered in detail in academic literature (Freyman et al., 2016), except for a few authors. According to Mason et Harrison (2006), and Detienne (2010), transferors are faced with many "reconversion" options: create a new business, invest as a business angel or provide their experience to assist other companies. Retirement is also an option considered by transferors and accounts for approximately 60% of transfers according to OSEO (2005). If a transferor is retiring, selling their business is one means of topping up their pension (Bruce et Picard, 2005; Van Teeffelen et Driessen, 2007; Varamäki et al., 2014), particularly as the pensions of small business owners can be unrewarding (Dombre-Costes, 2015) and social security returns can be lower than expected (combining social security regimes can lead to complications (Vilain, 2004));

However, the effects of these buyout operations might take longer to be felt, in principle, or at the least are complicated to assess on a short-term basis:

- **The impact on the survival of businesses** can take time to manifest or be uncertain in the short term: a counterfactual situation where an executive cannot transmit their company will not necessarily lead to the disappearance of the company in the early years. In fact, the entrepreneur can choose to continue to direct their business until they find an acquirer (Durst, 2011; Wennberg et al. 2010). However the effects can be felt more rapidly if the entrepreneur is nearing retirement age. In parallel, the company transmitted, with higher debt, can prove a higher risk operation in the interim period;

- **Impacts on investment and employment** can also be uncertain in the short term: operations allowing transmitted companies to compensate for inadequate financing and expand can be differentiated from those primarily aiming to boost the productivity of the target. For the first type, the aim is to promote the expansion of the company, however this strategy can prove limited during the early years, as the funding provided for the acquisition of the company, which is relatively high, could reduce the potential for investment and recruitment from the word go. For the second type, the aim is to improve profitability, which could lead to a reduced workforce in the more immediate future. In this respect, Gazaniol (2014) highlights the ambiguous effects of mergers & acquisitions on employment as their impact is generally positive in the medium term, but can reverse on a short-term basis, in a restructuring context;

The impact of buyout operations would therefore depend on the observation period considered. On a long-term basis, these operations would have major economic and social effects. Over and beyond maintaining business and employment, these operations would ultimately improve the economic performance of companies, enhance the human capital of acquirers and provide capital which the transferors could then re-invest.

1.2 Obstacles on the buyout market

However, buyout operations are likely to be slowed for several reasons.

Let us start by specifying that statistical means cannot be used to recognise all corporate transfers in France: INSEE ceased to provide statistics for these operations in 2006 due to a lack of data on acquisitions of company shares. The problem also exists in other countries, for which only partial statistics are available, that limit any type of international comparison.

If statistics are not monitored, it remains difficult to identify potential loopholes on the buyout market, e.g. in terms of obtaining funding and ultimately defining the most suitable support policies for these needs: To give one example, Van Teeffelen et Uhlaner (2009) mention the need to obtain performance indicators for the buyout market.

Despite these limitations, some studies have mentioned that obstacles exist on the buyout market.

1.2.1 Non-financial obstacles on the business buyout market

Some of the imbalance on this market is caused by non-financial obstacles.

- **Inadequate planning by transferors**, who would find themselves relatively unprepared for the buyout process for their business (Observatoire CNFCA-Epsilon, 2018) and would tend to underestimate the duration of this operation (Le Lab, 2015). This phenomenon is apparently caused by a combination of several factors: both psychological obstacles, which are covered by a relatively large number of literature publications on the emotional attachment of an executive for their business (Pailot, 1999; Sharma et al. 2001; Cadieux, 2005) (particularly if the executive is a founder), but also an inadequate understanding of the buyout process, often perceived as a complex operation in both legal and fiscal terms (Haddadj et d'Andria, 2001);
- **Information asymmetries :**
 - **An informational advantage held by the transferor.** As is the case on many markets, the transferor is better informed than the acquirer with respect to the company to be transmitted (Bouchikhi, 2015). This advantage can lead to a risk of a legal contingency if the transferor decides to dissimulate some information, aiming to reduce the acquisition price paid for the company (Bastie et Cieply, 2007);
 - **A narrower view of the buyout market for the acquirer**, who is evolving in a market described as highly opaque (Deschamps, 1999). This lack of visibility is particularly true for plans to purchase company shares, which are frequently subject to non-disclosure agreements, due to the inherent priorities in terms of employment. On this basis, potential business acquirers face

a relatively limited access to this market. Although it is difficult to appreciate the impact of these operations, the Chamber of Commerce and Industry (CCI) for the Ile-de-France region estimates that such operations represent between 60% and 70% of transactions concluded (undisclosed markets);

- **Friction faced with respect to the geographic mobility of acquirers**, which leads to regional differences between supply and demand. On this basis, a study carried out by Observatoire du CRA (Cédants et Repreneurs d’Affaires - Business acquirers and transferors) in 2015 demonstrates significant imbalance between large urban metropolises and the rest of France: in the Ile-de-France (Paris) region and in Auvergne-Rhône-Alpes, acquirers outnumber transferors by a ratio of 1 to 4 and 1 to 2.2 respectively, while in other regions, this ratio falls between 1 and 1.5.

1.2.2 Financial obstacles on the business buyout market

Non-financial obstacles combine with financial obstacles for acquirers, which are frequently mentioned in academic literature (Geerts, Herrings and Peek, 2004; Langman et Lugt, 2005; Van Teeffelen, Meijaard et Geerts, 2005; Van Teeffelen et Driessen, 2007).

These funding difficulties are mainly attributable to finding the necessary capital to prepare a buyout project.

A business acquisition represents around 190,000 euros³, i.e. between 4 months and 1 year of company operations (in terms of business turnover) (Observatoire du Financement, 2016). In addition, it is worth noting that other financial needs can arise, such as incorporation duties, and start-up expenses (the need for extra working capital during this stage). On the other hand, when purchasing company shares, it is more difficult to evaluate the mean value of these transactions. A study completed by Observatoire du CRA (2019) targeting their members provided a few reference values. This study estimates that the mean acquisition cost for the executives supported for a planned transfer represents approximately 840,000 euros.

It is, *de facto*, difficult for the acquirer to finance their acquisition project without a bank loan. Obtaining funding is a prerequisite for the success of the project (Van Teeffelen et Driessen, 2007; Audet et St-Jean, 2009), and would explain the high percentage of acquirers requiring a bank: Observatoire du Financement (2016) estimates that 7 out of 10 projects require a bank loan application. The SINE survey (2014) reached the same conclusion, with around 70% of acquirers requiring a bank. Obtaining a bank loan also requires the use of a relatively large amount of personal capital, between 20 and 30% of the financing plan. This contribution could represent a financial obstacle for acquirers with less personal capital.

In addition, studies mentioned the existence of structural changes affecting the buyout market. These changes apparently led to a **drop in the percentage of family businesses retained by the next generation in France (OSEO, 2005) and abroad (Grant Thornton, 2005)**, partially due to sociological changes: incompatible value systems (Merigot et Hirigoyen, 1988) such as the growing number of children who prefer to follow a different career path to their parents (Mandl, 2010).

This phenomenon apparently tends to promote external takeovers (outside of the family), which now prevail in several western economies including France (Observatoire CNFCA-Epsilon, 2014) and the Netherlands (Meijaard, 2005; Van Teeffalen, 2006), and require greater external capital (Van Teeffalen, 2006).

In this context, commercial banks play a central role, but they can face many types of difficulties when it comes to assess buyout projects:

- **The cost of obtaining information**, as these applications require two levels of analysis by banks: on the one hand, the personal background of the acquirer and their financial history must be analysed, despite the fact that first-time entrepreneurs will lack a relevant financial history by definition (this will apply for those changing career), and on the other hand, banks must analyse the history of the target company. This attempt to obtain information can therefore enhance transaction costs, which can be

³ Business barometer focusing on sales and transfers, BODACC 2016

detrimental for banks when considering risks and the small amounts requested, particularly for small businesses (European Commission, 2013; Gazaniol et L , 2019);

- **Collateral can sometimes be complex to obtain for banks.** Banks require a certain number of guarantees from the acquirer, as collateral for the receivables, such as a loan guarantee or securities. However, when purchasing company shares, accepting securities as collateral can appear unsatisfactory for banks if the company acquired is insolvent (Observatoire du Financement, 2015). In this case, the value of the securities is, in principle, reduced by the economic difficulties faced by the company, and can therefore indeed prove insufficient to cover the losses recorded by banks;

Funding a "sterile" debt, which is a high-risk operation by definition. A "sterile" debt is defined as a loan taken out by the acquirers to purchase a company or fund. This type of financial operation is relatively risky from the viewpoint of both banks and companies for two reasons: (i) the capital is not or only very partially re-injected into the production resources of the company in order to expand operations, as it is primarily used to finance the acquisition of the company of the funds (ii) the company must obtain sufficient cash to repay its debt during the initial years, which can lead to a fragile financial situation (OSEO, 2005).

1.3 Government support for business buyouts

A certain number of public schemes are available in order to offset these funding difficulties, aiming to ease the completion of these operations. Three types of financial support are available in France:

- **Financial assistance**
 - **ACRE (Assistance for creating or acquiring a business)** is a total or partial exemption from social contributions depending on the amount of income earned in this type of operations, over the first twelve months of company operations. Job seekers are the main target of this financial assistance;
 - **Fiscal assistance** such as the income tax rebate granted after acquiring capital in an SME.
- **Government-assisted loans**
 - **Honour loans** help to reinforce the personal capital brought by the executive in order to facilitate obtaining a bank loan. These are zero-interest loans with no personal collateral required. The executive agrees "on their honour" to repay the loan. These honour loans are granted by support networks backed by Bpifrance, such as Initiative France or R seau Entreprendre, and benefit both acquirers and entrepreneurs;
 - **NACRE loan** (New support for creating or acquiring a business) is similar to an honour loan and consists of a zero-interest loan with no personal collateral required. These loans are granted for up to 10,000 euros and must be completed with a bank loan. These loans are also supported by non-financial assistance with the preparation of the project, financial structuring and launching the new activity. It mainly targets new businesses or acquirers who were recently job seekers.
- **Loans guaranteed by public bodies**, such as Bpifrance and the EIF (European Investment Fund) are bank loans hedged by these bodies if the borrower fails to meet their commitments. The advantage of these guarantee schemes is that they transfer some of the risk accepted by the banks to these bodies and reduce the personal collateral required of the borrower. Such schemes prove particularly helpful if providing securities as guarantees appears mostly unsatisfactory from the bank's viewpoint.

Bpifrance is one of the main public contributors to this ecosystem, via its initiatives to promote support networks and its guarantee schemes.

2. Presentation of the “buyout” guarantee

This study focuses on buyout projects covered by the "new business" and "buyout" guarantee funds of Bpifrance (jointly known as the “buyout” guarantee). Analysing these two funds will cover most buyout operations backed by the Bpifrance guarantee.

2.1 Presentation of the "new business" and “buyout” guarantee funds

The aim of these two schemes is to guarantee the loans granted by commercial banks to natural and legal persons planning to buy out a company. These schemes can cover the funding of medium or long-term loans, including personal loans for the purposes of contributing capital or blocked accounts and providing bank guarantees for vendor financing⁴ for the “buyout” fund.

These two funds can be used to cover the two main types of buyout projects, and the associated risks:

Support for buyouts	Eligible projects	Maximum amount of the guarantee	Risk ceiling (for all banks)
Guarantee fund for "new businesses"	Business buyouts and company share purchases by an acquirer <u>with less than 3 years of business experience</u>	Maximum amount equal to 50%	1.5 million euros per company or group of companies
Guarantee fund for "buyouts"	Business buyouts and share purchases by an acquirer <u>with more than 3 years of business experience</u>	Maximum amount equal to 50%	1.5 million euros per company or group of companies

A planned acquisition of securities (company shares) is eligible for the guarantee fund if most of the capital or voting rights in the company are acquired or, if applicable, if a minority holding is acquired, however the aim is to acquire a majority holding over a specified period, as defined in a contract.

Acquiring securities for a company undergoing bankruptcy proceedings is not eligible.

In terms of the "new business" fund, it is worth noting that this fund also backs “*ex-nihilo*” new business projects which were previously covered by a study in 2019 (Gazaniol et Lè, 2019).

⁴ A blocked account is assigned to a company debt to a partner. The "buyout" fund can be used to guarantee the personal loan of partners in order to reinforce the blocked account.

Vendor financing comprises a loan granted by the transferor to the acquirer for the amount required to acquire the company. The transferor granting this vendor financing may require a bank guarantee. Up to 50% of this guarantee can take the form of the "buyout" fund (source: Bpifrance-Création site).

2.2 Figures for the “buyout” guarantee

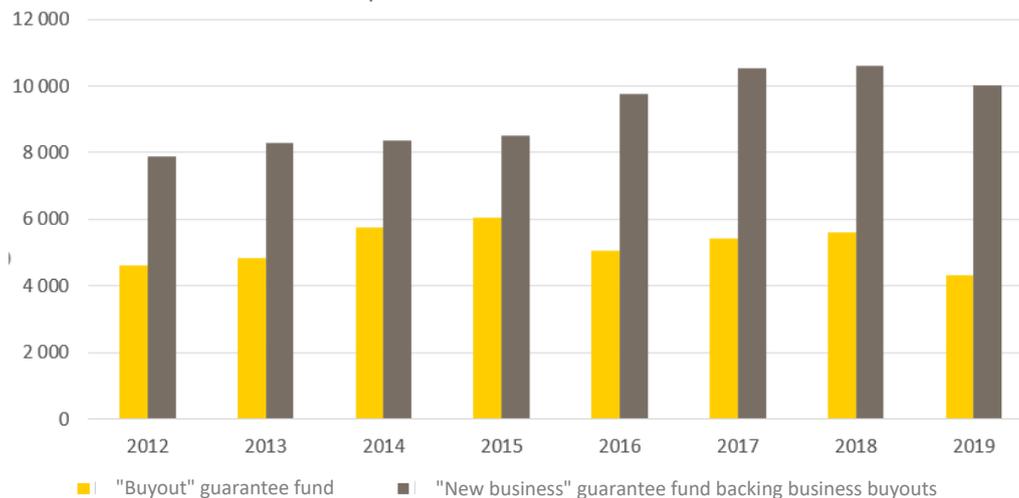
On average, over the 2012-2019 period, around 1.2 bn euros of loans and roughly 9,300 separate companies were covered annually by the "new business" fund for buyout projects. and 1.4 bn euros of loans for approximately 5,200 separate companies were covered annually by the "buyout" fund.

Graphic 1 shows variation in the number of business buyouts and new businesses supported by the "new business" and "buyout" funds.

In 2019, a decrease in loan hedging for business buyouts were recorded for the "new business" and "buyout" guarantee funds. This slowdown was relatively moderate for the "new business" fund (-6% in terms of the number of companies), but was more evident for the "buyout" fund, at around 20%.

By the way, this evolution happened simultaneously with an increased pricing, in 2019, that concerned the whole "new business" fund and "buyout" fund operations delegated to commercial banks.⁵ In line with the new pricing, it appears that most variation for the "buyout" fund affected operations delegated to banking networks: the decrease in the number of beneficiaries represents – 37% for "delegated" guarantees and – 4% for "notified" operations. However, we need to keep in mind that this analysis is limited due to the lack of data for the underlying acquisition market.

Graphic 1 - Variation in the number of business buyouts and new businesses supported by the "new business" and "buyout" funds between 2012 and 2019



Source: Bpifrance, Altarès (BODACC) data.

Understanding: in 2019, the "buyout" and "new business" funds covered 4,300 and 10,000 separate buyout operations respectively.

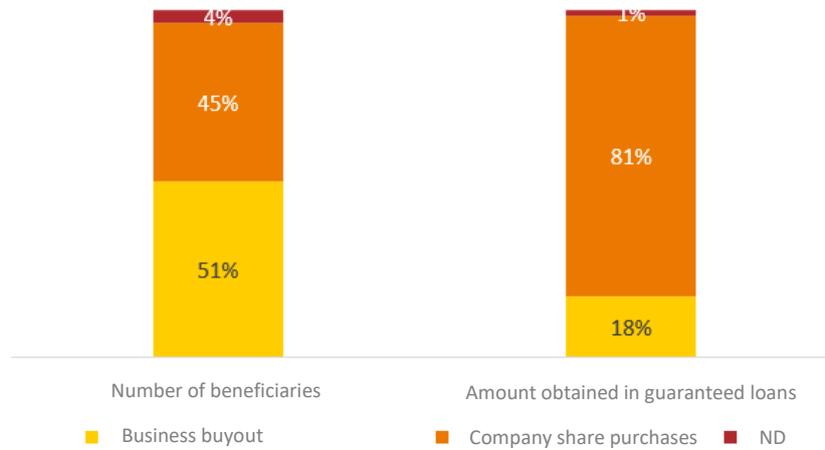
Graphics 2 and 3 show the distribution of the "buyout" and "new business" guarantee funds depending on the type of project, the number of beneficiaries and the amount of the guaranteed loans. This breakdown is estimated since available data in Bpifrance information systems do not allow us to identify the different types of operations (*ex-nihilo* new business, business buyout, share acquisition), except in specific cases⁶.

Graphic 2 – Distribution of the "buyout" guarantee fund per type of operation

⁵ We reiterate that the type of distribution of the guarantee varies depending on the amount of the loan applied for: if the amount of the loan is less than 200 k euros, the bank is responsible for the decision to grant the guarantee ("delegated" guarantee); beyond this threshold, the bank must submit its loan application to the Bpifrance network ("notified" guarantee) (Gazaniol et Lê, 2019). These delegated guarantees represent 55% of the "buyout" fund on average (in terms of the number of beneficiaries) over the 2012-2019 period.

⁶ The type of project is indicated for guarantee applications analysed by Bpifrance project managers ("notified" guarantee). This information is not available for the guarantee applications handled directly by banks. In addition, business buyouts cannot be differentiated from share acquisitions for the new business fund. Bpifrance data is crossed with BODACC data to identify company share acquisition operations.

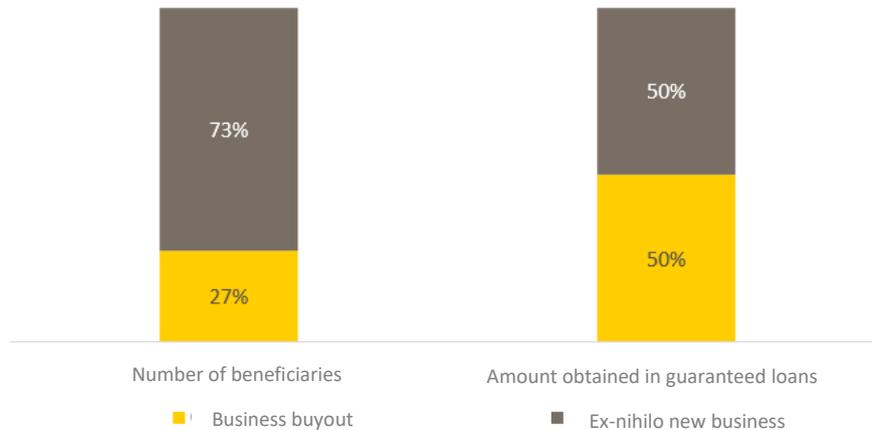
between 2012 and 2019



Source: Bpifrance, Altarès (BODACC) data.

Understanding: between 2012 and 2019, the impact of business acquisitions represented 51% of the "buyout" fund on average, in terms of the number of companies, and 18% of the amount of guaranteed loans.

Graphic 3 – Distribution of the "new business" guarantee fund per type of operation between 2012 and 2019



Source: Bpifrance, Altarès (BODACC) data.

Understanding: between 2012 and 2019, the impact of new business acquisitions represented 27 % of the "new business" fund on average, in terms of the number of companies, and 50 % of the amount of guaranteed loans.

This analysis reveals significant differences in the distribution of the number of companies and the amount of guaranteed loans. These differences are evident, on the one hand, due to the greater impact of business buyouts in terms of the amount of loans versus the number of companies, when compared with the impact of *ex-nihilo* new businesses on the "new business" fund, and on the other hand, due to the greater impact of share acquisitions in terms of the amount of loans versus the number of companies, when compared with the impact of business buyouts on the "buyout" fund. **Such differences are caused by the fact that the amount of the guaranteed loans depends substantially on the type of project:**

- For the "new business" fund, these amounts represent 130,000 euros on average when acquiring a new business (buyout). That is more than the amount of an *ex-nihilo* new business which is equal to approximately 50,000 euros due to the greater financial needs when acquiring an existing business (SINE survey, 2014);
- In the same way, for the "buyout" fund, share acquisitions represent guaranteed loans for a mean amount of 485,000 euros, versus 95,000 euros when acquiring a business.

In 2019, Bpifrance dedicated around 30% of its volumes and 40% of the amount of its guarantee operations to business buyouts.

If we compare these figures at European level, according to AECM (European Association of Guarantee Institutions)⁷ data, it appears that a large number of guarantors support business buyouts. This support mainly takes the form of standard guarantee schemes, i.e. schemes which do not specifically target business buyouts. Only a few operators, such as Bpifrance and Sowalfin (Belgium), offer guarantee schemes dedicated to these financial operations (such as the "buyout" fund).

2.3 Expected theoretical impacts of the "buyout" guarantee offered by Bpifrance

This study aims at evaluating the economic impact of the "buyout" guarantee on the performance of the companies purchased. These companies correspond to the "target" companies of the operations supported, i.e. purchased by the acquirer, regardless of the latter's profile. To begin with, it is essential to identify the theoretical impacts of this scheme.

In principle, the guarantee scheme helps to adjust the financial constraints faced by the acquirer which leads to several potential effects:

- Release the funding for the business buyout when the operation is considered too high risk by the fund providers and/or if the amount of the loan requested to conclude the operation is considered too low to be profitable by the bank (the costs incurred by the bank in finding and analysing information are not worthwhile if the loan is for a small amount);
- Expand the number of potential acquirers for a company, helping to match acquirers and transferors on the buyout market, speed up the handling of instances and make it easier to adjust production factors in an economic context, boosting the efficiency of a production system;
- Improve the acquirer's funding conditions (reduced interest rate, freeing up resources for future investment) and/or expanding the range of expenses to be covered by the acquisition loan in addition to purchasing the business/shares (percentage allocated to investment or capital re-injected in production resources, or recruiting personnel).

Via these channels, the "buyout" guarantee provides a means of obtaining funding or improving the profile of these operations, with potential theoretical benefits for companies, as described in the literature review in the previous section.

This evaluation could provide a partial empirical answer to these channels, despite a number of difficulties:

- **Impact mechanisms are complex to understand.** When compared with the study of other guarantee schemes led by Bpifrance (Gazaniol et L  , 2019), the impacts of the "buyout" guarantee based on the

⁷AECM brings together the main guarantee operators in Europe (public institutions, development banks, private bodies).

performance of the target companies are exclusively indirect (the financial backing is not invested in the business to acquire capital and finance growth, the capital is transferred to the transferor and invested elsewhere. This aspect is not considered in this study) and probably long-term (cf. literature review).

- **Problems relating to inadequate data on buyout operations:** (i) no statistical solutions for identifying the transfer of company capital (ii) difficulties in tracking the trajectory of businesses after acquisitions, due to a change in the incorporation of the legal units after acquisition;
- **It is complex to compare these results with those of other studies.** In fact, while a relatively large range of academic literature is available on business buyouts (particularly companies kept in the family, and in the field of social sciences), there are few or no economic studies evaluating the efficiency of backing for these operations, such as the guarantee scheme, either in France or abroad. Schemes such as ACCRE (Duhautois et al., 2015; Redors, 2017; Cabannes et Fougères, 2012) and PCE⁸ (Bastie et Ciéply, 2013) which benefit both entrepreneurs and business acquirers have indeed been evaluated but exclusively focusing on *ex-nihilo* new businesses or without separating both types of projects.

3. Methodological decisions and limits of the study

Econometric analyses refer to several methodological decisions, and explanations and limits of those decisions are described in this section.

3.1 Using matching methods

The strategy used to identify the impacts of the guarantee must take into account the selection bias specific to the guarantee scheme: on the one hand, the entrepreneurs profile probably determine both their propensity to intend to buy out a company (e.g. their personal expertise, such as their experience in business buyouts, or their entrepreneurial drive) and the propensity of banks to request a Bpifrance guarantee (e.g. insufficient personal resources); on the other hand, the guarantee comes at a cost. Banks only benefit from obtaining one if the risk premium for the companies / entrepreneurs is greater than the cost of the guarantee. This targeting process behind the scheme will logically lead to the over-representation of companies / acquirers with relatively high-risk premiums, or in other words, the companies / entrepreneurs with the most financing difficulties in principle.

This selection bias can be integrated by using various methodologies with different levels of robustness. **The ideal methodological approach would be to create a "control" panel where companies and entrepreneurs experienced greater difficulty in accessing the "buyout" guarantee for exogenous reasons** (e.g. due to loopholes in the distribution of the guarantee – "near-natural" experiences). In practice, this type of methodology is difficult to implement in this case as the guarantee targets a wide audience and all French SME are eligible for the scheme (since 1995).

Since there is no totally satisfactory quasi-natural experiment available, we chose to use propensity score matching techniques, where companies backed by the guarantee are compared with companies with a similar initial profile, but without the backing of the guarantee. These methods can be used to partially correct the selection bias described above (based on the observable characteristics of companies and entrepreneurs which influence both the propensity to acquire companies and use the guarantee, and the future performance of the company). This method is combined with a difference in differences approach which take into account non-visible characteristics that are constant over time.

Finally, we specify that this approach focuses on the economic impact of the scheme on the acquired company, while ignoring any analysis of the future of the transferor, considering the difficulties involved in obtaining data

⁸ PCE (Loans for starting new businesses) is a Bpifrance scheme and was withdrawn in 2015. The scheme aimed to facilitate the funding of first-time new businesses. These loans represented between 2,000 and 7,000 euros and hedged projects ranging up to 45,000 euros, with no personal collateral or deposit.

on the latter: (i) the identity of the transferor must be recovered, and could potentially be available in the DADS (Annual social data declarations) database, but exclusively on employed executives (ii) the path followed by the transferor after leaving the company must be determined. However, transferors can opt for many different types of paths (cf. Literature review) and can thus be difficult to track without using a wide range of data sources, with unknown degrees of overlap.

3.2 Selecting a theoretical situation

The choice of the control group must be selected in order to determine the type and scale of the impacts of the guarantee. Three types of control groups are identified:

- **A panel of companies without the guarantee, with no information on whether an actual transfer project exists or not.** Considering available data, it is complicated to model the probability that an executive is planning a transfer (the only criterion which can be taken into consideration for executives is age). However, transfer propensity is also likely to depend on the characteristics of the business (cf. *infra*);
- **A panel of planned sales (regardless of whether the sale comes to fruition or not).** The data used to set up this counterfactual is particularly difficult to assign, as these plans are generally confidential and pass through a long list of intermediate parties (mergers & acquisitions agencies, accounting agencies, networks of associations, chamber of commerce and industry, etc.) which do not centralise their data;
- **A panel of companies actually transmitted.** Establishing such a counterfactual will not by definition allow the effects of the scheme on the completion of the operation to be evaluated (all of the companies in the "control" panel were previously transmitted). On the other hand, this approach can prove worthwhile for highlighting any impact of the guarantee on the financing conditions obtained by the acquirer or on the capital injected into the target company.

The counterfactual is therefore mainly driven by available data and the type of impacts targeted. For these reasons, we decided to adopt the first counterfactual to begin with. The third counterfactual will also be studied as part of complementary tests.

3.3 Selecting variables for use in the model

Modelling the propensity to sell a company under the Bpifrance guarantee is no trivial process. **In practice, the combination of several effects is modelled:** (i) opting to sell the company rather than close or continue business in the Q (ii) selling the company in the Q (iii) the bank obtained a guarantee as part of the funding in the Q.

In this respect, Van Teefalen et al. (2009) wrote a literature review on the concept of ceasing entrepreneurship, aiming to model the first two effects mentioned. This review guided us when selecting variables for our model:

- **The business segment:** buyout propensity varies depending on the segment. In the Hotel and Catering sector, the expansion options faced by companies is limited by their initial size. In order to expand a business, it is often necessary to sell and purchase a larger business (Insee Champagne Ardenne, 2007). According to Insee, approximately 1.6% of companies are sold each year (out of total active businesses) for all sectors, however this figure can reach up to 7% in the retail sector (Counot et Mulic, 2004). It is worth noting that in regulated sectors such as the sale of drinks (licence IV) and pharmacies, acquisitions are *de facto* the first launch mode for entrepreneurs;
- **Geographic location:** the geographic criterion can also be used to identify some territorial particularities and provide a proxy for the potential of acquirers in these regions;
- **Financial resources of the company:** this factor can affect the strategy to sell or retain the company in several ways (Leroy et al. 2007): an improved company performance could encourage the executive to

sell their company, as this approach would help to improve the value of the business (with external third parties); on the other hand, this improved performance could be a sign that the executive is more committed to the company, and an indication of their drive to continue to lead the business. This information is integrated *via* a set of variables:

- The level and dynamism of company revenue;
 - The level and dynamism of the company's gross operating surplus;
 - The level and dynamism of the company's financial debt;
 - The economic profitability of the company: earnings before tax over total fixed assets and working capital requirements;
 - Several ratios related to the financial structure of the company (GOS/ AV ratio, equity / balance sheet ratio, financial debt / GOS ratio, liquidity ratio);
- **The size of the company:** there is no consensus in terms of the impact of the size of the company in academic literature, even if some authors suggest the idea that the number of jobs plays a role in the withdrawal strategy of the executive (the decision to sell or close the business): opting to sell the company, rather than dissolve it, could be preferred by executives responsible for the employment of a larger number of employees. The size of the company is integrated in our model *via* several variables:
 - The number of company sites;
 - The number of full-time equivalent (FTE) employees in the company;
 - The company's personnel expenses: this variable can be used to obtain information on the level of qualification required for the job;
 - The size of the company's balance sheet;
- **The age of the executive of the company studied:** older executives more frequently consider withdrawing from their companies (Wennberg et al., 2010). Executives are therefore expected to reach the decision to sell the company rather than continue with the business in direct proportion to their age. On the other hand, studies have shown that the age criterion is an imperfect determinant for the probability of an actual sale (BPCE, 2011), which appears to imply that older executives have more difficulty selling their businesses;

Our model is completed with other variables used to effectively predict the three aforementioned effects:

- The legal status of the company;
- Corporate investment variables;
 - The level of tangible assets;
 - Income from tangible investment;
 - Net-to-gross ratio: net tangible assets versus gross tangible assets. This ratio aims to evaluate the degree of wear to company production equipment;

- The level of workforce productivity evaluated as the ratio between added value and the number of FTE employees;

On the other hand, other criteria used in these studies were not taken into account in our model, due to a lack of qualitative data on transferors:

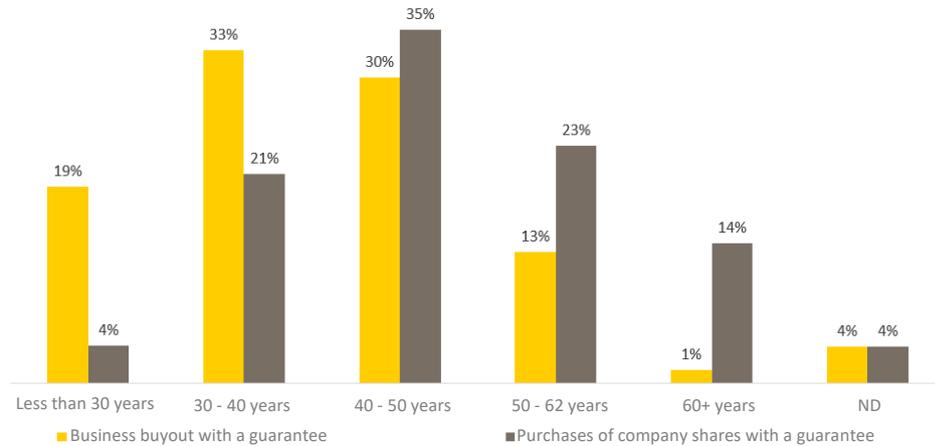
- **The experience of the current executive in business buyouts (sale or acquisition) or the fact that the executive has acquired the company in question in the past:** the executive's experience in buyouts is expected to have a positive influence on their intention to sell rather than close the company (Van Teefalen et al., 2009), and their ability to conclude the deal (Amaral et al., 2007);
- **The degree of dependency between a company and its executive:** if the company is highly independent to the executive, this aspect will also encourage the latter to sell the business rather than close it (Van Teefalen et al., 2009), and improve their ability to conclude the deal (Amaral et al., 2007): the more the company is intrinsically dependent on its owner, the harder it will be for the business to operate without the executive;
- **Other criteria such as** the emotional attachment of the executive to their company (Sharma, 2003), their level of education, their ability to plan the potential sale and the number of supporting customers (a limited number of customers is likely to increase the vulnerability of the company while degrading its appeal to potential buyers);

3.4 Descriptive analysis of the two types of buyout

Companies purchased *via* a business buyout and the purchase of company shares are profiled in this case, in order to understand the differences between the two buyout strategies. **The profile of the company sold and that of the acquirer will vary substantially depending on the type of buyout concluded:**

- **In terms of the size of the company sold:** 95% of business sales involve small businesses, and 5% SME. The results are more balanced for companies acquired by purchasing shares: 44% of small businesses, 55% of SME. The size of the company is indeed a factor in the type of buyout operation. Executives targeting larger companies will generally be interested in the entire company (liabilities and assets) rather than just production resources (assets), and will tend to prefer acquisitions by shares;
- **In terms of the age of the acquiring executive:** ever-younger executives are acquiring businesses: 20% of acquiring executives were under 30 versus 5% of those having purchased company shares. On the other hand, only 15% of executives aged over 50 acquired businesses versus 37% of those having purchased company shares. This difference is probably due to composition, based on the size of the company. In fact, the companies targeted by company share acquisition operations generally require greater financing due to their size, which is in principle easier to obtain for older executives (age can be a *proxy* for access to financial resources *thanks to the past* experience of the acquirer);

Graphic 3 – Comparison between the two groups of beneficiaries depending on the age of the acquiring executive, for support provided between 2012 and 2015

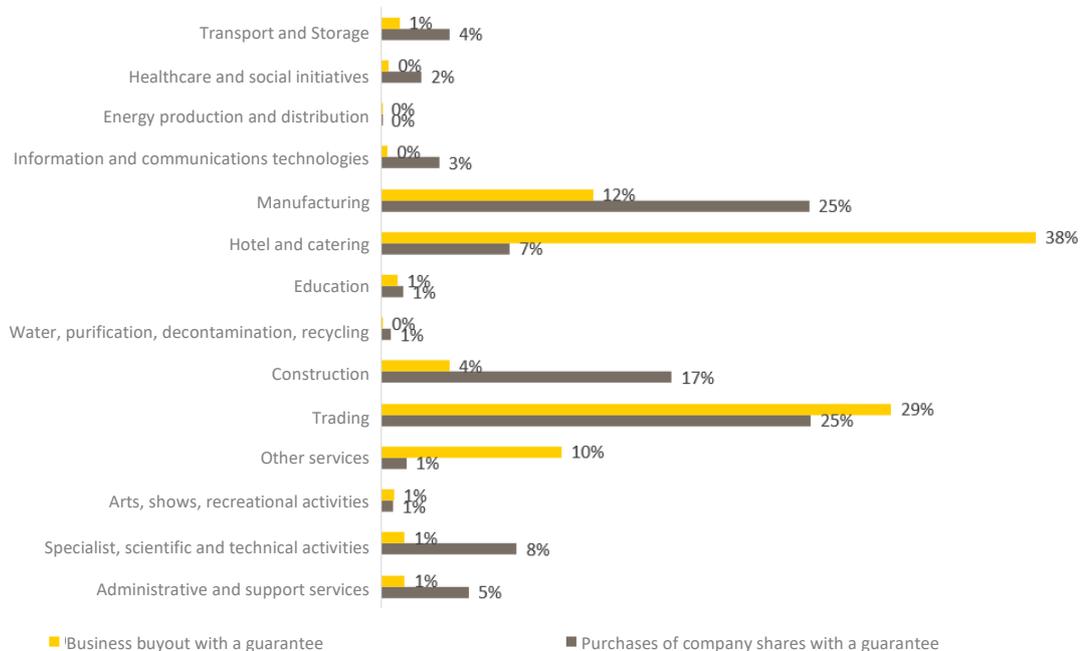


Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

Understanding: 19% of executives having benefitted from a guarantee in order to purchase a business between 2012 and 2015, were aged less than 30. Over the same period, 4% of executives aged under 30 obtained a guaranteed when purchasing company shares.

- In terms of the sector of the company sold:** Hotel & Catering sectors and Trade represent a significant percentage of sold businesses (30% and 40% respectively). Manufacturing and Trade are the main sectors covered by the companies selling shares (25%). It is also apparent that these differences between sectors relate closely to the size of the companies;

Graphic 4 – Comparison between the two groups of beneficiaries depending on the business segment of the target company, for support provided between 2012 and 2015

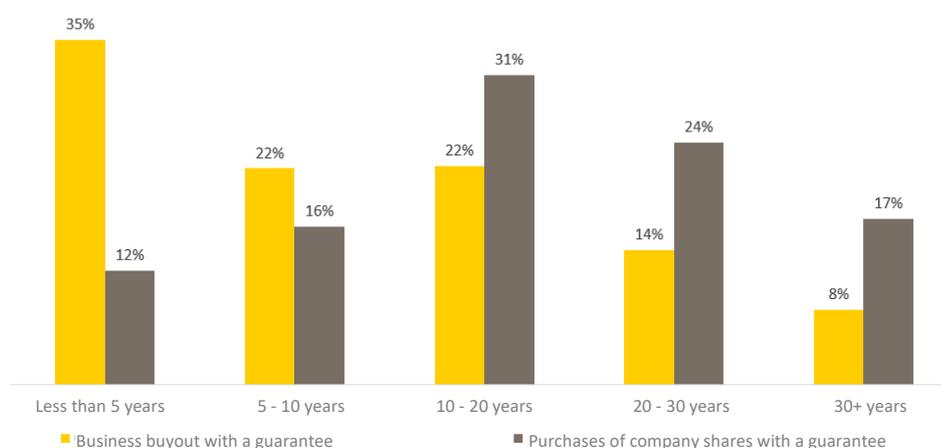


Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

Understanding: between 2012 and 2015, 38% of business buyouts with a guarantee and 7% of company share acquisition operations with a guarantee were in the Hotel & Catering sector

- **In terms of the legal status of the company sold:** different legal status are expected as only listed companies can sell company shares. It is worth noting that 45% of companies having sold their assets were sole traders;
- **Age of the company sold:** one third of business sales involve companies which have existed for less than 5 years, versus 10% for the acquisition of company shares. On the other hand, 20% of business buyouts involve companies aged over 20, versus 40% for company share acquisitions. These differences partially reflect mechanical differences. If a business is sold, when the property is transferred, the company sold is generally dissolved and the acquirer creates a new company, while, on the contrary, if shares are purchased in a company, the same company will continue to exist, despite several changes of ownership. For this reason, we find a higher percentage of mature companies among those which sell their shares.

Graphic 5 – Comparison between the two groups of beneficiaries depending on the age of the target company, for support provided between 2012 and 2015



Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

Understanding: between 2012 and 2015, 35% of business buyouts with a guarantee and 12 % of company share acquisition operations with a guarantee were for companies aged under 5 years.

4. Analysis of the impact on business buyouts

This section analyses the impact of the Bpifrance guarantee on business buyouts.

4.1 Data

Two difficulties arise when reconstituting the economic trajectory of companies before and after the business buyout operation: (i) the transferor and the acquirer correspond to two different entities (ii) only the identity of the acquirer is included in Bpifrance data.

Data from the Bulletin Officiel des Annonces Civiles et Commerciales (BODACC - Official French journal for civil and commercial announcements) on announced sales can be used to overcome these issues:

- **BODACC data on announced sales** display all announced sales and business buyouts for companies on the French Business register (Registre du Commerce et des Sociétés - RCS), taken from the public registers of Commercial Courts. In principle, this database is complete, as all sales must be announced in the BODACC.

This database is structured as follows: each announced sale indicates the date of publication, and the identities (siren number) of the transferor and the acquirer so that we can reconstitute the transferor-acquirer pair for each acquisition.

In the next stage, operations backed with the guarantee are identified from all the complete list of operations. This involves crossing the BODACC database with the Bpifrance database, using the acquirer's siren number as the common denominator.

Finally, the company's path is reconstituted: the transferor's siren number is used to identify accounting data for the company prior to the operation and the acquirer's siren number to identify data for the acquired firm after the operation. The data used are taken from Esane accounting data:

- **INSEE Esane accounting data (Fiche Approché des Résultats Esane - FARE)** includes statistics for all non-agricultural and non-financial trading firms. This database includes accounting data for each individual company: characteristics, income statements and balance sheets; and combines several data sources: tax data (tax documents submitted by companies to the tax authority), social data (employee data obtained from several public bodies such as URSSAFF) and data acquired in statistical surveys.

It is worth noting that this analysis excludes operations with several sellers or acquirers and exclusively covers companies having obtained a guarantee within one year of the operation.

Other data sources were used to complete this analysis:

- **The INSEE list of sites and companies (Répertoire des Etablissements et Entreprise - REE)** lists all active sites and legal units and operators in the non-agricultural trading sector in mainland France and overseas regions. REE data is obtained from declarations submitted by companies to the office responsible for handling official formalities for companies (CFE) and relates to creation, changes in situation and closure. INSEE uses this data to study corporate demographics, to give just one example. This base is used in this study to recognise the number of sites operated by the companies;
- **BODACC data on closures** can be used to identify companies undergoing bankruptcy or recovery proceedings or voluntarily closed (without bankruptcy proceedings);
- **Data obtained from the survey under the Information system for new companies (Système d'Information sur les Nouvelles Entreprises - SINE)** can be used to track a group of entrepreneurs over the first five years of their new business project. The survey covers two types of entrepreneurs: those creating a company *ex-nihilo* and those launching a business as part of a buyout (generally with the acquisition of a business). The survey covers the scope of new businesses, excluding micro-businesses, in the non-agricultural trading sector. The panel of entrepreneurs is contacted at three times: in the early months after the launch (Q), three years after the launch (Q+3) and five years after the launch (Q+5). This survey can be used to collect in top notch qualitative data on the new businesses: personal data on the executive (age, gender, qualification, etc.), business characteristics (business segments, financing plan and sources, use of government subsidies), the reasons for creating the new business and any difficulties faced by the entrepreneur.

4.2 Scheme targeting

4.2.1 Scheme impact

BODACC data can be used to estimate the impact of the Bpifrance guarantee in the total value of business buyouts. This guarantee is estimated to represent 22% of these sales (over the 2012 – 2015 period), and would appear high if we compare this figure with the impact of the guarantee on *ex-nihilo* new businesses, for which the guarantee represents 10% according to the SINE survey (2014). This difference is mainly due to the fact that the use of bank loans varies substantially depending on the type of project: bank loans are required in 33% of

cases for *ex-nihilo* projects and 70% of business buyouts. In fact, if we exclusively consider the scope of companies using the services of banks, it appears that the difference between these percentages is reversed: the guarantee then represents 33% of first-time new businesses backed by a bank loan and 25% of business buyouts.

4.2.2 Profile of scheme beneficiaries

This targeting analysis focuses on all business buyout operations and aims to compare those with a guarantee with those without a guarantee. The extensive available data allows for several aspects to be compared:

- **SINE survey data for the 2014 group:** we focus on the acquirers surveyed by SINE in 2014 in order to compare the personal profiles of beneficiary acquirers with those without a guarantee;
- **BODACC and FARE data for the 2012 to 2015 groups:** companies having sold their business assets between 2012 and 2015 are analysed. The aim is to compare the characteristics of these companies in Q-2 (two years before the business buyout) depending on whether or not they obtained a guarantee in Q (year of the business buyout and in which the guarantee was granted).

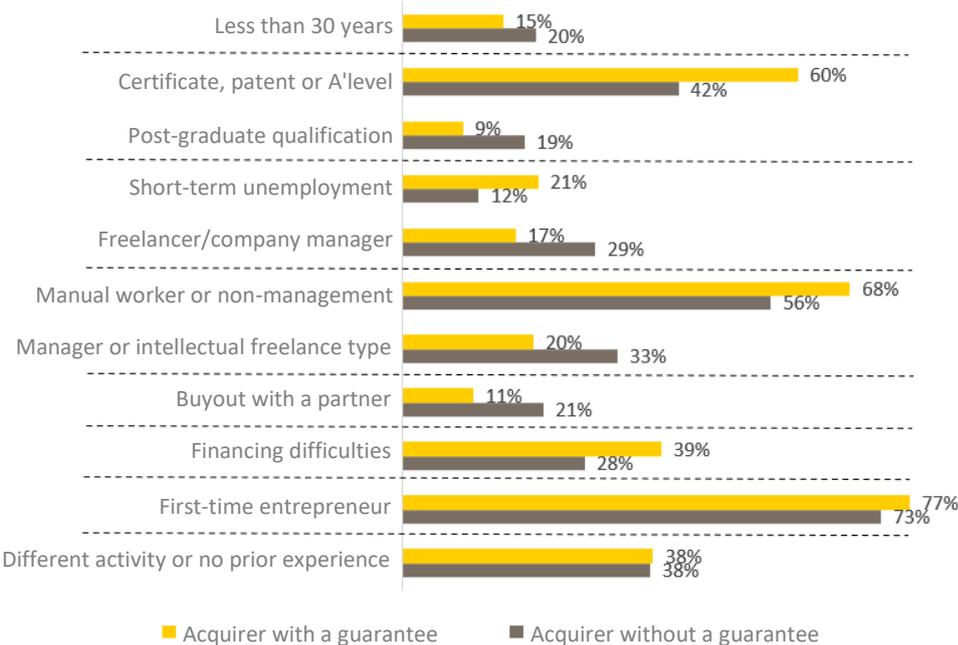
According to the initial analysis and focusing on the personal profile of the acquirer, acquirers that benefit the **guarantee are likely to face greater difficulties in obtaining a loan in principle:**

The “buyout” guarantee is obtained for acquirers who are generally younger, with less qualifications, with a relatively high percentage of short-term job seekers (20% of beneficiaries versus 10% for other acquirers). In the same way, it appears that beneficiaries with previous employment were generally in a position which required a lower level of qualification: 70% of beneficiaries were manual workers and non-management employees, compared with 55% of other acquirers. These acquirers are therefore likely to have fewer financial resources and reduced collateral. In line with the level of financial resources, projects with backing tend to correspond to acquisitions by one individual or a couple, rather than with one or more partners, which can generally access far deeper financial resources.

These observations are also confirmed by the high proportion of beneficiaries claiming that they had difficulty obtaining funding: 40% of these beneficiaries make such claims, versus 30% of other acquirers. On the other hand, when considering other characteristics likely to influence the long-term survival of companies, such as entrepreneurial experience and experience in the business segment of the acquired company, the differences between these two groups would not appear noticeable.

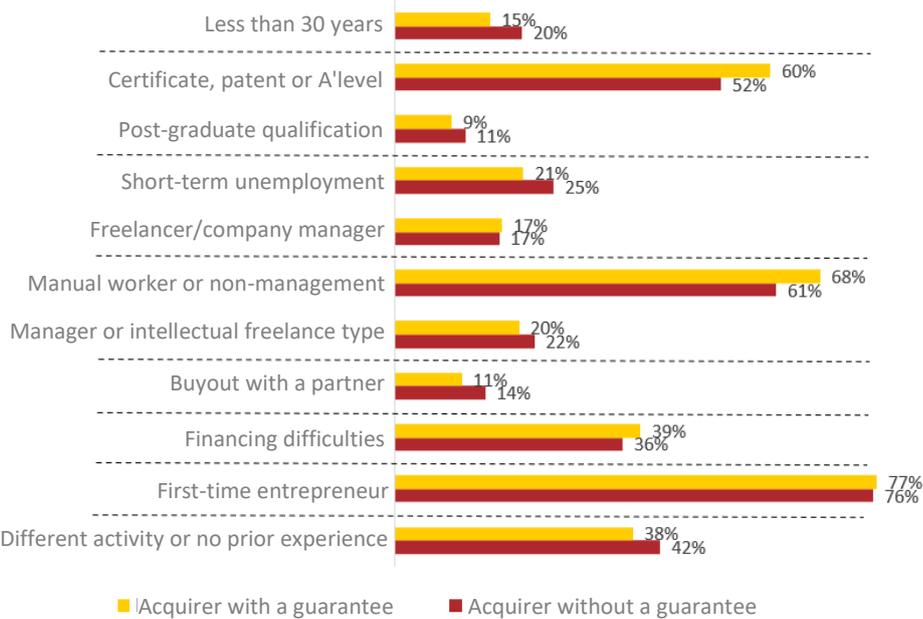
Graphic 6 – Personal profiles of acquirers with and without a guarantee in 2014

Source: Bpifrance data, SINE survey 2014.



We can add a comparison between *ex-nihilo* entrepreneurs and acquirers having obtained a guarantee. This comparison was possible thanks to SINE survey data. It highlights that the two entrepreneur panels have a generally similar profile, characterised by a high proportion of first-time new businesses, with no experience in the new segment, which are managed by one person or a couple, but which face difficulties obtaining funding in both cases. Nonetheless, it appears that, if we consider acquirers with a guarantee, the level of education and qualifications of the position previously occupied by the entrepreneur were generally lower for acquirers, than for *ex-nihilo* entrepreneurs.

Graphic 7 – Personal profiles of acquirers and entrepreneurs with a guarantee in 2014

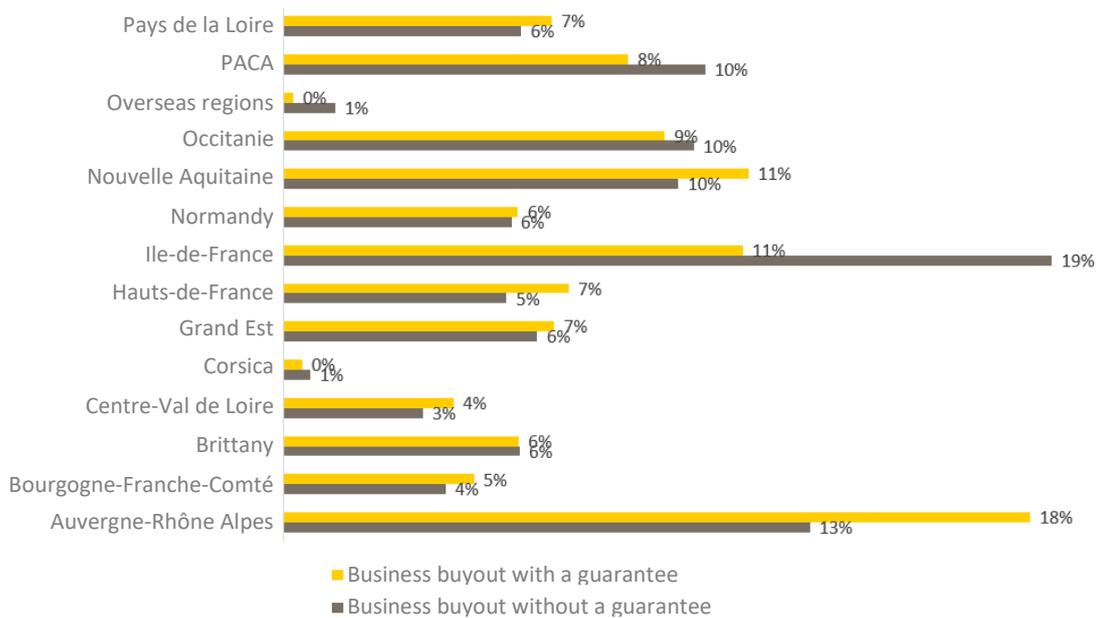


Source: Bpifrance data, SINE survey 2014.

Now the second analysis focuses on the characteristics of companies in Q-2 if they sold their business assets in the year Q for the 2012-2015 groups. This analysis aims to compare these companies depending on whether they obtained a guarantee or not, and led to several observations:

- Companies with and without guarantees are relatively similar based on several criteria: business segment, legal status, company age, and several financial ratios (equity to debt ratio, liquidity ratio, GOS to added value ratio);
- On the other hand, beneficiary companies can be identified geographically:
 - By a reduced presence in the Ile-de-France region (11 % vs. 19%), similar to all of the companies backed with a guarantee;

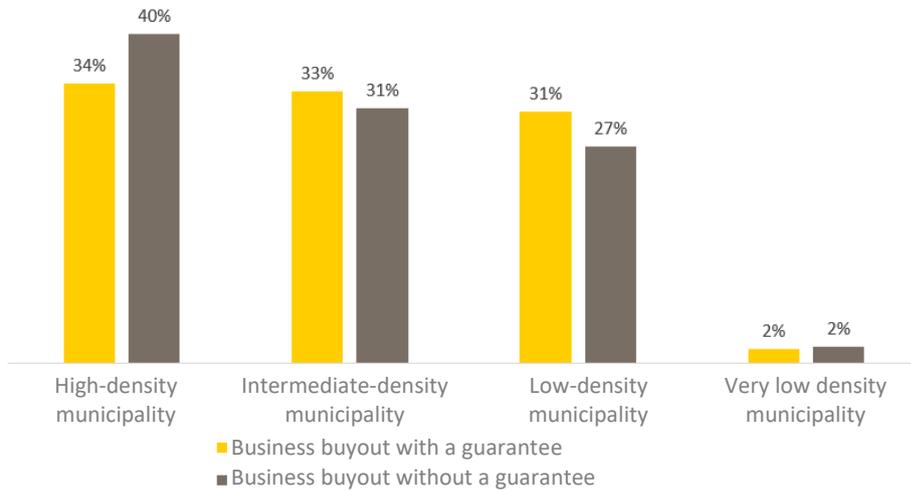
Graphic 8 – Regional distribution of business acquisitions with and without a guarantee, for the 2012 to 2015 groups



Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

- By a reduced presence in high-density cities (34 % vs. 40%). It appears that municipalities with low or very low population densities are less dynamic in terms of transfers and jobs;

Graphic 9 – Territorial distribution of business acquisitions with and without a guarantee, for the 2012 to 2015 groups



Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

- It would appear that beneficiary companies are smaller for this geographic criterion:
 - 95% of such companies are small businesses prior to obtaining a guarantee versus 90% for non-beneficiary companies;
 - One third of such companies generate revenue of less than 50 k euros versus 23% for non-beneficiary companies;

According to these analyses, it therefore appears that commercial banks request the "buyout" guarantee for acquirers likely to face financial difficulties, potentially due to a lack of financial resources and lower collateral when setting up the business. These acquirers also target smaller companies, with less presence in the Ile-de-France region and in high-density cities, which nonetheless remain similar according to several criteria such as business segment and financial structure.

4.3 Results of the evaluation of the impact of the scheme

Results were estimated over two separate phases: (i) estimation of a propensity score for each company in the panel considered (ii) matching beneficiary companies with non-beneficiary companies on the basis of this propensity score. This matching process is combined with a difference in differences approach, which can be used to take into account the *ex-ante* performance of the companies through the propensity score.

Four groups of companies are studied, corresponding to companies having potentially obtained a guarantee between 2012 and 2015. Each group combines two types of company:

- Companies listed in the FARE and having obtained a guaranteed loan in Q for a business buyout (also in Q);
- Companies listed in the FARE and without a guaranteed loan in Q whether the business was actually purchased or not .

These groups are monitored over a 7-year period, from Q-3 to Q+3.

The first matching phase involves estimating a propensity score for each company in the panel considered. These propensity scores are estimated based on a logistical regression modelling the probability of obtaining a guarantee in Q, depending on several variables: the characteristics of the company in Q-2 and corporate dynamics between Q-3 and Q-2.

The decision to calculate *ex-ante* dynamics over the period running from Q-3 to Q-2 is not trivial. In fact, it appears that the operations of acquired companies slow in Q-1, i.e. during the year immediately prior to the business buyout. We could correlate this trend with the results of an empirical study by Observatoire BPCE in 2017, which suggests that executives modify their investment behaviour in the run-up to selling their company. Executives plan ahead for the sale of the company by withdrawing and reducing investment in the years immediately prior to the sale. This slowdown is not necessarily a sign of a poor financial situation and could potentially reflect a more "prudent behaviour with guarantees" (Dombre-Costes, 2015) by the executive. Consequently, when considering dynamics in Q-1, we could introduce an endogenous bias, that tends to overestimate the impact of the backing: in this base, similar companies with poor figures are selected in the control group. The decision was therefore reached to exclude this period when calculating the *ex-ante* performance of companies.

Graphic 10 – Variation in revenue between Q-3 and Q+3 for companies purchased *via* a guaranteed loan (median revenue in thousands of euros)



Source: Bpifrance, Altarès (BODACC) and FARE (CASD) data.

When selecting variables for the model, the variables mentioned in section 3.3. were once again used. The continuous variables are broken down into deciles in this model to take into account the potentially non-linear relationship between model variables and the propensity of obtaining a guarantee.

The final results (cf. Appendix 2) are globally as expected:

- The probability of obtaining a guarantee correlates with the business segment of the company, its geographic location and its age. This probability is higher if:
 - The company is in the Hotel and Catering sector;
 - The company executive has a manual trade;
 - The company is not located in the Ile-de-France region;
 - The company is relatively recent (incorporated less than 10 years ago vs. more than 10 years ago).
- The executive's age (before obtaining the backing) and the probability of obtaining a guarantee are linked by a non-linear relationship. Relative to executives aged between 30 and 40:
 - Executives aged under 30 and over 50 are more likely to obtain a guarantee;
 - On the other hand, this probability decreases if the executive is aged between 40 and 50;
- In the same way, the size of the company will affect the probability of obtaining a guarantee. This probability will increase for smaller companies, as evaluated based on the value of the balance sheet and the level of revenue, fixed assets and liquidities;
- Finally, a higher level of equity (equity / balance sheet ratio) and slower debt dynamics imply a greater probability of obtaining the guarantee;

The second phase involves matching beneficiary and non-beneficiary companies with similar initial characteristics. This degree of similarity is defined based on the propensity score, estimated during phase 1. Finally, it is specified that this matching procedure is supported by several criteria:

- Using the nearest neighbour technique which aims to link the non-beneficiary company with the nearest propensity score to each beneficiary company. One single neighbour will be selected for each beneficiary company in the main specification;
- **Using the full matching technique:** the same non-beneficiary company can be linked to several beneficiary companies;
- Using the common support restriction: selected companies must be located in the common support between the two conditional distributions of the propensity score;
- Establishing a maximum threshold (“caliper”) beyond which the distance between the propensity score of the beneficiary company and the non-beneficiary company is considered too great for acceptable matching. This threshold is generally defined as 0.5 times the standard deviation of the propensity score.

This procedure can be applied in order to correct selection bias due to the variables used in the model. In fact, according to equilibrium testing, the conditional distributions of these variables are similar after matching (cf. Appendix 2).

In addition, several impact indicators are selected based on the literature review and available data:

- **The tangible investment indicator:** total net tangible investment between Q+1 and Q+3;
- **Performance indicators:** absolute variation in revenue and the gross operating surplus (GOS) between Q-2 and Q+3;
- **Job indicator:** absolute variation in the number of full-time equivalent (FTE) employees between Q-2 and Q+3. This indicator is used rather than a growth indicator due to the small size of companies which leads to volatile calculations. In addition, the growth indicator mechanically excludes companies without a workforce prior to obtaining a guarantee which concerns approximately 10% of the group of beneficiary firms;
- **Occupational productivity indicator:** this variable corresponds to the added value of the company over its number of FTE employees;
- **Survival indicator:** this indicator is provided by BODACC data and specifies if the company was active or not in Q+3. More precisely, this variable indicates if the company has closed or not, regardless of the type of closure (bankruptcy proceedings or voluntary closure). This indicator is similar to that used in the previous study (Gazaniol et Lê, 2019) to estimate the impact of the "new business" guarantee on the monitoring of newly created companies.

Impact indicators must primarily be calculated while integrating a particularity of business buyouts: the company sold is generally dissolved in the context of a sale. However, these companies should be considered as still active from an economic approach (the production resources still exist). To this end, we reconstituted the series of companies sold and acquired over the time period studied. This technique will be used to calculate all impact indicators. This means that, for a given company in a given year, the performance data considered correspond to the siren number of the last company acquired, if acquired, and to the company initially considered in all other cases (e.g. to calculate variation in employment for company A, now company B subsequent to an acquisition in Q. The workforce of B in Q+3 is deducted from the workforce of A in Q-2).

We decided to exclude any extreme values (1% and 99%) from the matched panel for all indicators except survival which avoids outliers affecting results. The analysis also focused on companies with the same number of sites before and after the business buyout as the two entities would be difficult to compare in all other cases (case with extreme variation due to partial transfers: the seller only transfers one of its sites to an acquirer with no initial site).

Finally, we reiterate that one of the limits of this study is that the future of the transferor after withdrawing the company cannot be studied. This approach does not consider the potential economic impact of the scheme attributable to the transferor, when the latter re-invests the income from the sale of the company in the economy. Indeed, younger transferors can be more likely to re-invest the capital obtained in a sale in a new business.

4.3.1 Main results

The economic impacts of the "buyout" guarantee are estimated for beneficiary companies, over a three-year period, for groups between 2012 to 2015. The results shown in table 1 are those of the most recent group, from 2015:

Table 1: summary of the impacts of the "buyout" guarantee over a 3-year period for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Nearest neighbour matching with 2 neighbours	Nearest neighbour matching with 3 neighbours	Matching with a territorial variable added ⁹
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	660,846	2,797	8.2*** (0.84)	8.3*** (0.58)	8.8*** (0.48)	9.2*** (0.81)
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	673,538	2,938	28.9*** (3.90)	31.6*** (2.73)	29.9*** (2.20)	31.4*** (3.87)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	673,538	2,938	5.2*** (0.84)	6.2*** (0.60)	6.0*** (0.49)	5.6*** (0.85)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	496,523	2,348	0.1** (0.05)	0.1** (0.03)	0.1*** (0.03)	0.1** (0.05)
Productivity level for Q+3 <i>(in €k for FTE)</i>	465,161	2,218	NS (1.06)	1.4** (0.73)	2.3*** (0.60)	NS (1.06)
Closure rate between Q and Q+3	909,767	4,935	-3.8*** (0.01)	-3.8*** (0.01)	-3.7*** (0.01)	-3.7*** (0.01)

Source: Bpifrance, FARE (CASD) and BODACC (Altarès) data. *** indicates that results at 1%, ** 5% and * 10% are statistically significant. The figures provided in the table correspond to estimated impacts and associated standard deviations (between brackets).

⁹ Adding this variable to the model restricts the territorial location of companies other than using the region, by differentiating companies depending on whether they are located in a municipality with a high-density population, low-density population or very-low-density population (INSEE classification).

Understanding: if we adopt a nearest neighbour matching technique, companies with the guarantee record revenue growth between Q-2 and Q+3 which is €28.9 K greater than that of the selected "control" companies on average.

- **Total net tangible investment between Q+1 and Q+3:** the scheme boosts the amount of tangible investment by the company. This difference represents between 8,000 euros and 9,000 euros depending on the group;
- **Growth in revenue and gross operating surplus (GOS) between Q-2 and Q+3:** the "buyout" guarantee boosts growth for companies in terms of revenues and GOS. In other words, beneficiary companies record growth which is significantly higher than that of similar companies without a guarantee (with or without an actual purchase). This extra growth corresponds to an amount of between 22,000 and 32,000 euros for revenue and 4,000 - 5,000 euros for GOS. When compared with the initial level of revenue and GOS, this impact is approximately 16% for revenue and between 14% and 19% for GOS;
- **For personnel between Q-2 and Q+3:** the effect on jobs is less clear: the impact was not significant for the 2012 and 2014 groups, and 0.1 jobs for the 2013 and 2015 groups, which is 5% of initial jobs (cf. Appendix 3). These results can be explained in various ways: (i) most of the beneficiaries (40% of them) of the guarantee are companies in the Hotel and Catering segment, which frequently employ only a few members of personnel due to their size (cf. section 3.3). Indeed, we estimate that median job growth for companies having purchased a business in Q in the Hotel and Catering sector is zero between Q-2 and Q+3 for the groups considered (ii) the high financial input required to start the business and for the necessary investment, mainly required to modernise production resources, is likely to represent an obstacle to recruitment during the early years. Finally, it is important to specify that the positive impact of the guarantee on the long-term survival of the company could indirectly be considered as a job booster triggered by the scheme (cf. below);
- **Workforce productivity for Q+3:** companies backed with a guaranteed loan achieve a significantly higher level of workforce productivity than the control group, three years after receiving the loan. This is the expected result, as the effects evaluated are positive in terms of growth in business operations, but zero or not significant on the workforce of the company purchased;

Company survival at Q+3: the "buyout" guarantee scheme improves the long-term survival of companies, as evaluated based on closure figures. This level corresponds to the percentage of companies having closed, regardless of the type of closure (bankruptcy proceedings or voluntary closure *i.e* without bankruptcy proceedings). On this basis, the percentage of closures for beneficiary companies is less than that for non-beneficiary companies, on average, regardless of whether the business was actually purchased or not, over a 3-year period. This difference in closure levels represents between - 2.1 and -3.8 percent on average.

The difference in differences approach is valid as it is based on the assumption that the beneficiary and non-beneficiary companies follow the same trajectory, with no support. This assumption can be tested using a "placebo" or dummy test, checking that trends between the performance of companies with guarantees and that of the control group run parallel prior to obtaining backing. If the test demonstrates the contrary *i.e.* that trends differ between the two groups of companies prior to obtaining the backing, the results may not be considered as valid. We ran this test on revenue, GOS and past employment figures, and on net tangible investment. The results of this test suggest that the two groups were following parallel trends prior to receiving the guarantee (cf. Appendix 2).

The level of buyouts for companies in the control group (after matching) can be compared with that in the national panel to test the validity of the latter panel. This comparison tests if the companies in the control group are more likely to be bought out and the proportion of companies actually purchased is expected to be higher in the control group. These results can be found in table 2. According to this comparison, in 2015, 14.6% of the controlled companies were bought out, which is indeed higher than the national average of 3.4%.

Table 2: a comparison of the percentage of companies transmitted between Q and Q+3 for the theoretical panel and the total panel

Panel	2012 group	2013 group	2014 group	2015 group
% of companies purchased in the theoretical panel, obtained after matching	16%	14.2%	14.2%	14.6%
% of companies purchased out of all companies eligible for the guarantee	5.1%	5.0%	4.8%	4.7%

Finally, other matching processes were run to test the robustness of results: with two and three neighbours and by adding an additional variable for the territorial dimension. These robustness tests indicate similar results to those obtained *via* the reference approach (cf. Table 1).

4.3.2 Complementary results

The main results described in section 4.3.1 are completed by various tests aiming to improve the understanding of how the "buyout" guarantee scheme impacts beneficiaries.

The first two tests involve analysing if the impacts differ according to the characteristics of companies.

We start by considering the impact of the scheme on older executives. The aim is to replicate the previous matching procedure for companies with executives aged over 50 prior to the year in which the guarantee was obtained (for the transferor once the company has been purchased). 40% of the eligible population and 42% of companies with guaranteed loans fall into this category. This analysis was inspired by a publication by Tsurata (2019), studying the ageing population of executives in Japan. According to this study, when all other factors remain unchanged, executives nearing retirement age are more likely to liquidate and close their business, if they face difficulties finding an acquirer. This is due to various factors: (i) the difficulty of finding an acquirer could lead to legal contingencies, as the executives nearing retirement age would be less likely to repay their financial debts. This effect could lead to a higher level of non-payments for this category of executives (ii) opportunity cost over time would increase with the age of the executive. Older executives would be prepared to spend less time seeking out an acquirer, when compared with younger executives. On this basis, we could expect the impacts of a scheme designed to facilitate this business buyout to be relatively more significant for an older population.

Table 3: summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged over 50 prior to obtaining the guarantee, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
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Total net investment rate between Q+1 and Q+3 (in €k)	265,590	1,245	10.4*** (1.26)	19***
Growth in revenue between Q-2 and Q+3 (in €k)	270,772	1,310	48.5*** (6.31)	26***
Growth in gross operating surplus between Q-2 and Q+3 (in €k)	270,772	1,310	6.6*** (1.34)	33***
Growth in FTE jobs between Q-2 and Q+3 (in number of FTE employees)	199,967	1,022	0.2** (0.08)	11**
Productivity level for Q+3 (in €k for FTE)	185,238	1,012	2.9* (1.61)	
Closure rate between Q and Q+3 (in ppt)	376,640	2,159	-8.4*** (0.01)	

Source: Bpifrance, FARE (CASD) and BODACC (Altarès) data. *** indicates that results at 1%, ** 5% and * 10% are statistically significant. The figures provided in the table correspond to estimated impacts and associated standard deviations (between brackets).

Understanding: if we adopt a nearest neighbour matching technique, companies with the guarantee record revenue growth between Q-2 and Q+3 which is €48.5 K greater than that of the selected "control" companies on average.

The results of this analysis (cf. table 3) appear to corroborate the conclusions of this study: considering this group of companies, the magnitude of the evaluated impacts on growth in revenue, GOS, employment and the survival of companies is greater than for the total panel. The impacts are also given as a percentage of the initial median level of the indicator considered (in Q-2) to incorporate the fact that the size of businesses is likely to differ depending on whether they are led by executives who are relatively late or early in their career. These impacts appear clearly greater than those estimated for the total population: in 2015, this impact represented 26% for growth in revenue, 33% for growth in GOS, 11% for employment, when this effect was more moderate for the total population, with 16% growth for revenue, 26% for GOS and 6% for employment. If we consider the percentage of closures, this impact, which is the difference between closure levels for beneficiary companies and "control" companies, ranges between -5.9 percent and -8.4 percent, which is also greater in magnitude than the estimated value for the total panel, which varies between -2.1 and -3.8 percent (depending on the group considered). In other words, the effects of the guarantee scheme are apparently greater for companies with a relatively older executive prior to obtaining a guarantee (either the age of the executive represents an additional obstacle to the buyout, as mentioned *above*, or *this* variable correlates with other factors which dictate the magnitude of the impacts). The results of the test performed on executives aged under 50 were much lower than those for the panel with executives aged over 50 (cf. Appendix 4). It is also worth noting that the impacts on apparent labour productivity are relatively high for older executives (despite the fact that the effects on employment appear harder-hitting for this population), but not significant for younger executives. The effects on operational productivity are therefore likely to vary depending on the age of the transferors, and at this stage, it is impossible to determine how this effect will be felt.

We also tested to determine if the impacts of the guarantee scheme differed depending on the relative amount of the loan (normalised by the value of the balance sheet for Q-2). This test allows us to appraise the extent to which a guarantee for a higher amount could potentially lead to greater impacts for the beneficiary company. The effects of the scheme are expected to be greater if the amount of the guaranteed loan is higher, which would allow the acquirer to plan for additional investment. We split the panel into two groups of companies for this purpose, depending on whether the relative amount of the guaranteed loan was greater than or less than the relative median amount of the guaranteed loans (calculated for the entire panel considered) and then ran the matching process independently based on the same principle as prior matching operations. These two estimates give the expected results, which suggests that the amplitude of the impacts depends on the relative amount of the guaranteed loan obtained (or that this relative amount would correlate with other factors, which dictate the magnitude of the impacts): the estimated impacts (normalised by the value of the balance sheet) are indeed greater if the companies receive a higher relative amount in the form of a guaranteed loan. This observation is

valid for most of the indicators considered. It is worth taking note that the effects of the guarantee on apparent labour productivity are enhanced (excluding the 2015 group) for this sub-group of companies.

Table 4: summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is greater than the median value, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	659,533	1,484	9.4*** (1.10)	19***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	672,155	1,555	38.2*** (4.97)	22***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	672,155	1,555	6.8*** (1.08)	34***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	495,438	1,263	0.3*** (0.07)	20***
Productivity level for Q+3 <i>(in €k for FTE)</i>	464,154	1,211	NS (1.39)	
Closure rate between Q and Q+3 <i>(in ppt)</i>	907,299	2,467	-5.6*** (0.01)	

Source: Bpifrance, FARE (CASD) and BODACC (Altarès) data. *** indicates that results at 1%, ** 5 % and * 10 % are statistically significant. The figures provided in the table correspond to estimated impacts and associated standard deviations (between brackets).

Understanding: if we adopt a nearest neighbour matching technique, companies with the guarantee record revenue growth between Q-2 and Q+3 which is €38.2 K greater than that of the selected "control" companies on average.

Table 5: summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the amount of the guaranteed loan is less than the median value, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	659,362	1,313	7.9*** (1.15)	15***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	671,983	1,383	22.3*** (6.12)	12***
Growth in gross operating surplus between Q-2 and Q+3	671,983	1,383	4.0***	20***

<i>(in €k)</i>			(1.31)	
Growth in FTE jobs between Q-2 and Q+3	495,260	1,085	NS	NS
<i>(in number of FTE employees)</i>			(0.08)	
Productivity level for Q+3	463,950	1,007	NS	
<i>(in €k for FTE)</i>			(1.58)	
Closure rate between Q and Q+3	907,300	2,468	-2.8**	
<i>(in ppt)</i>			(0.01)	

Source: Bpifrance, FARE (CASD) and BODACC (Altarès) data. *** indicates that results at 1%, ** 5 % and * 10 % are statistically significant. The figures provided in the table correspond to estimated impacts and associated standard deviations (between brackets).

Understanding: if we adopt a nearest neighbour matching technique, companies with the guarantee record revenue growth between Q-2 and Q+3 which is €22.3 K greater than that of the selected "control" companies on average.

The final test involves focusing on companies which were actually purchased. This test can be used to isolate some potential effects of the scheme: e.g. the potential to obtain higher financial input if the acquirer holds a guaranteed loan (amount of the loan or financial conditions granted to the acquirer) or the effect of the scheme on the quality of the matching between the transferor and the acquirer. On the other hand, this test excludes the effects of the scheme on the acquisition of funding and therefore the conclusion of the planned buyout: all of the executives in the control group had obtained funding, without a Bpifrance guarantee, for their business buyout. On this basis, the impact evaluation under-estimates the effect of the scheme, possibly significantly.

From a methodological viewpoint, this matching process has benefits when modelling the propensity score. When compared with the matching method applied to date, which led to modelling the combination of several effects (i) opting to sell the company rather than close or continue business in the Q (ii) selling the company in the Q (iii) the bank obtained a guarantee as part of the funding in the Q) and increased the degree of uncertainty for analyses, in this case, we only model the probability that the bank obtained a "buyout" guarantee (iii), all companies purchased by definition.

It is worth noting that the SINE survey, covering a panel of acquirers, which could provide qualitative information on the latter, only represented 6% of all business buyouts in 2014, i.e. a total of 1,000 companies, which proves to be insufficient to use this data for matching purposes.

Several variables were added to the model when implementing this second estimation method: the age of the acquiring executive, the amount of the sale and the type of buyout (new business or transfer). It is important to realise that only companies using bank services are matched, i.e. companies with a non-zero financial debt recognised as an asset on the balance sheet after the buyout operation, for comparability reasons: an entrepreneur who managed to acquire a business without the backing of a bank loan cannot realistically be compared with an acquirer with a guaranteed loan for the same project (the mean amount of these operations was equal to approximately 190,000 euros).

Two questions of interest can be raised after matching:

- **If we consider similar companies bought out, can the profile of the beneficiary acquirers be differentiated from that of other acquirers?**

The companies in the *ex-post* matched panel, for which we can access SINE data, can be analysed in descriptive terms. These results must be interpreted with caution due to the small amount of data available (6% of the matched panel identified in the SINE base). Nonetheless, this analysis provides worthwhile input for the matched panel. The results suggest that, while acquired companies are similar in terms of the variables used in the propensity score, the profiles of acquirers with a guaranteed loan and those with a loan without a guarantee still differ in various ways. In principle, acquirers with guaranteed loans face greater difficulty obtaining a loan compared with the latter group: they are often job seekers (35% vs. 21%), and first-time new businesses (76% vs. 68%), and more frequently claim difficulties obtaining a loan (39% vs. 29%). Other characteristics are likely to relativise the risk faced by acquirers applying for a guarantee, which is higher in principle: for example, they have gained more extensive experience in the target business segment (56% of companies in the group considered

can claim over 3 years of experience in the business segment of the company acquired versus 53% for companies in the control group), and more frequently use structures dedicated to new businesses when launching their project (39% vs. 24 % - this is also likely to illustrate their relative lack of experience in entrepreneurship).

In fact, it appears that this matching technique cannot be used to correct the selection bias of the scheme attributable to the personal profile of the acquirer. In this analysis, the acquirers requiring banks to apply for a guarantee appear more "fragile" in general. Nonetheless, this test could be used to analyse if these differences in profile lead to different economic trajectories.

- **How do these differences affect the impact on total losses and the performance of these companies?**

According to the analysis, performance levels in terms of revenues, GOS and total losses for companies with a guarantee do not significantly differ from the controlled panel, despite the fact that these acquirers represent a relatively "fragile" group (cf. Table 5). These results would tend to rule out the hypothesis of an adverse selection or moral hazard using this approach: in all other cases, a less healthy economic result on performance and on survival rate would be expected theoretically.

In terms of the investment, this method is used to estimate the positive impact of the guarantee reflecting additional net tangible investment of approximately 3,600 euros over a three-year period when compared with companies purchased without a guarantee. This could reflect the additional capital available and re-injected into the target company: in addition to financing the business, beneficiary companies could re-inject part of their loan capital in the company purchased in view of additional investment.

Finally, in general, the results of this test suggest that the effects of the scheme are mainly felt due to completion of the buyout operation: achieved thanks to the reference approach (section 4.3.1) with far more rewarding results.

Table 5: summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses actually sold, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	5,279	1,869	3.6*** (1.37)
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	5,371	1,907	NS (6.66)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	5,371	1,907	NS (1.27)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	4,536	1,579	NS (0.08)
Productivity level for Q+3 <i>(in €k for FTE)</i>	4,288	1,473	NS (1.28)
Closure rate between Q and Q+3 <i>(in ppt)</i>	13,087	4,296	NS (0.01)

Source: Bpifrance, FARE (CASD) and BODACC (Altarès) data. *** indicates that results at 1%, ** 5 % and * 10 % are statistically significant. The figures provided in the table correspond to estimated impacts and associated standard deviations (between brackets).

Understanding: Companies with the guarantee record revenue growth between Q-2 and Q+3 which does not significantly differ from that of the selected "control" companies on average.

4.3.3 Discussion of results

Finally, these results can be compared with estimated results for the "new business" fund for *ex-nihilo* new businesses (Gazaniol et L , 2019). We compared these values for the 2014 group, for which impact figures over a three-year period are available for both types of operations, *ex-nihilo* new businesses and business buyouts. This comparison would appear to suggest that the impact of the guarantee on business closures is more moderate for business buyouts, when compared with the impact of *ex-nihilo* new businesses: -4 percent for business buyouts versus -8 percent for *ex-nihilo* new businesses. This comparison is provided for information only, as the approaches differ substantially between the two evaluations: for *ex-nihilo* new businesses, the study aims to compare newly created companies with and without a guarantee, considering the personal profile of the executive; for business buyouts, the approach corresponds to matching for companies acquired with and without the backing of a guarantee, whether the business assets are sold or not, ignoring the personal profile of the executive.

We could also discuss the choice of the survival indicator. Remember that the indicator used in this study and supported by BODACC data specifies if the company still exists or not three years later, with reference to a potential closure. Using such an indicator will give positive results in terms of the survival of companies with a guarantee, with a lower percentage of closures in the panel considered (impacts between -2.1 and -3.8%). However, these results are reversed if we consider an indicator for total losses exclusively centred on court-ordered liquidations. This impact, which corresponds to the difference between percentages of court-ordered liquidations for beneficiary companies and "control" companies, suggests an approximately 7% higher proportion of liquidations in the population benefitting from the guarantee than the control group, for the same period of observation.

These estimates are consistent with the results of the study of the "new business" guarantee (Gazaniol et L , 2019), which demonstrate that newly-created companies financed with a guaranteed loan tend to record a higher rate of court-ordered liquidations and recovery proceedings compared with the control group, up by around 8 percent (for the 2010 group). While the level of survival of these same companies evaluated based on closures is far greater than the control group for companies without a guarantee (- 8% cf. *supra*)¹⁰.

These results would appear to confirm the idea that using a Bpifrance guarantee boosts the probability of the beneficiary company surviving (whether transferred or newly created, as considered in the study by Gazaniol et L , 2019), while reflecting a higher likelihood of facing bankruptcy proceedings. This outcome could be explained in two ways: on the one hand, unlike the control group, companies obtaining a guarantee have, by definition, used the services of a bank, which boosts the probability that they will launch bankruptcy proceedings if they face difficulties, due to the need to manage debt collection for creditors; on the other hand, another closely related factor concerns the application of the Bpifrance guarantee by the bank, which requires the launch of bankruptcy proceedings if the company fails to make a payment. This condition mechanically helps to increase the level of bankruptcy proceedings for companies backed with a guaranteed loan (Gazaniol et L , 2019).

Conclusion

This study aims to assess the economic impact of guarantee funds intended to finance business buyouts ("new business" and "buyout" guarantee funds) with a focus on business transfers.

The aim of this study is to compare companies backed by a guaranteed loan in order to recover their business assets with companies without a guarantee, whether bought out or not. Opting for the theoretical set-up harvests the potential effect of the scheme on obtaining funding and, *ultimately*, on the buyout operation. A matching method is used for this purpose, combined with a difference in differences approach, which is

¹⁰ The purpose of this analysis was to compare the results of the Bpifrance "new business" guarantee in terms of its impact on total losses for businesses (Gazaniol et L , 2019) with the results of a study by Lelarge et al (2010). The Lelarge study concluded that the percentage of bankruptcy proceedings was higher for companies acquired with a guarantee than for the theoretical panel (by approx. 12 percent), however the effect of the guarantee on business closures as such was not studied.

supported by several databases: individual data on Bpifrance companies, all announced business sales and transfers published in the Bodacc and complementary Insee tax documents.

This study leads to several conclusions:

- The “buyout” guarantee is requested for acquirers with a relatively high-risk profile from a bank viewpoint, with access to less personal capital in principle and reduced collateral;
- This guarantee is requested for buyout projects in relatively fewer urban segments, which are also less dynamic in terms of transfers and jobs;
- The impacts related to the scheme are positive in terms of additional investment, revenue and the gross operating surplus, for all of the groups studied. On the other hand, the effects on jobs are variable: the impact was positive in 2013 and 2015 and not significant in 2012 and 2014. This outcome can partially be explained by the high proportion of companies in sectors such as Hotel and Catering, where job creation is limited by the size of the businesses; on the other hand, it can be explained by the high financial input required to start the business and for the necessary investment (e.g. to modernise production resources), which may represent an obstacle to recruitment during the early years. On the other hand, apparent labour productivity will increase more substantially if the acquisition is funded with a guaranteed loan. Finally, the scheme helps to ensure the long-term survival of beneficiary companies: the percentage of closures of companies transmitted *via* a guaranteed loan would appear lower than the equivalent figure for "control" companies;
- The scale of impacts appears greater for executives nearing retirement age and projects with a higher guaranteed loan (although no cause-effect link can be established for these profiles and the scale of impact).

Finally, it is important to highlight the limits of this study. The first limit depends on non-observable factors which could jointly influence the future performance and the probability of selling a business and benefitting from the guarantee (and cannot be evaluated here, such as the personal profile of the transferor). The second limit involves the estimation of the propensity score, by modelling several effects: (i) opting to sell the company rather than close or continue business in the Q (ii) selling the company in the Q (iii) the bank obtained a guarantee as part of the funding in the Q. This combination of effects is still complex to understand considering the available variables: the individual profile of the executive is not disclosed, other than his or her age. On this basis, it is difficult to determine the dominant effects in this estimation process. Finally, the latter limit is attributable to the fact that this approach exclusively focuses on the economic impact of the policy for the acquired company and does not incorporate the potential economic effects of the policy obtained *via* the transferor, who is ultimately likely to invest with the backing of a guaranteed loan (the income from the sale is invested in the economy). This limit relates to the fact that it is complicated to obtain data on the future of the transferor (natural person) after the purchase of their business.

Appendix

Appendix 1

Appendix 1.1 – European comparison of guarantee schemes covering business buyout

Country	Bank	Type of schemes
Austria	AWS	Standard guarantee schemes
Belgium	Sowalfin	schemes dedicated to business buyout / Standard guarantee schemes
Belgium	PMV/z-Waarborgen	Standard guarantee schemes
Bulgaria	NGF	Standard guarantee schemes
Czech Republic	CMZRB	Standard guarantee schemes
Finland	Finnvera	Standard guarantee schemes
France	SIAGI	Standard guarantee schemes

Source: AECM

Appendix 2

Appendix 2.1 - Modelling the probability of obtaining the "buyout" guarantee for a planned business acquisition, based on observable characteristics: results for the 2015 group

Explanatory variable	Coefficient	Standard deviation	Wald Chi-Squared Test	Critical probability	Significance
Constant	-6.365	0.172	1365.704	<.0001	***
Region for Q-2 (reference: Ile-de-France)					
<i>Alsace</i>	-0.2375	0.1258	3.5639	0.0590	*
<i>Aquitaine</i>	0.3938	0.0729	29.2092	<.0001	***
<i>Auvergne</i>	0.5379	0.0922	34.0435	<.0001	***
<i>Lower Normandy</i>	0.3986	0.0916	18.9531	<.0001	***
<i>Bourgogne</i>	0.3216	0.0950	11.4574	0.0007	***
<i>Brittany</i>	0.2652	0.0750	12.4900	0.0004	***
<i>Centre</i>	0.3156	0.0844	13.9819	0.0002	***
<i>Champagne-Ardenne</i>	0.2987	0.1120	7.1203	0.0076	***
<i>Corsica</i>	-0.8931	0.2819	10.0363	0.0015	
<i>French overseas territories</i>	-0.3859	0.1859	4.3102	0.0379	**
<i>Franche-Comté</i>	0.2209	0.1190	3.4488	0.0633	*
<i>Upper Normandy</i>	0.2781	0.0994	7.8227	0.0052	***
<i>Languedoc-Roussillon</i>	0.3277	0.0773	17.9511	<.0001	***
<i>Limousin</i>	0.3575	0.1317	7.3683	0.0066	***
<i>Lorraine</i>	0.2877	0.0948	9.2033	0.0024	***
<i>Midi-Pyrénées</i>	0.2137	0.0804	7.0674	0.0078	***
<i>Nord-Pas-de-Calais</i>	0.3007	0.0804	14.0041	0.0002	***
<i>Provence-Alpes-Côte d'Azur</i>	0.1449	0.0668	4.7120	0.0300	**
<i>Pays-de-la-Loire</i>	0.4125	0.0722	32.6641	<.0001	***
<i>Picardy</i>	0.0907	0.1123	0.6528	0.4191	
<i>Poitou-Charentes</i>	0.3615	0.0911	15.7381	<.0001	***
<i>Rhône-Alpes</i>	0.6336	0.0574	121.8286	<.0001	***
Segment for Q-2 (reference: Hotel and Catering)					
<i>Administrative and support services</i>	-1.8208	0.1278	203.0097	<.0001	***
<i>Specialist, scientific and technical activities</i>	-2.0552	0.1281	257.5016	<.0001	***
<i>Arts, shows, recreational activities</i>	-1.1394	0.1677	46.1542	<.0001	***
<i>Other services</i>	-0.8775	0.0613	205.0929	<.0001	***
<i>Trading</i>	-0.8082	0.0400	408.2417	<.0001	***
<i>Construction</i>	-2.4170	0.0984	603.5797	<.0001	***
<i>Water, purification, decontamination, recycling</i>	-3.1792	1.0010	10.0872	0.0015	***
<i>Education</i>	-1.2263	0.1903	41.5422	<.0001	***
<i>Manufacturing</i>	-0.7279	0.0542	180.5927	<.0001	***
<i>Information and communications technologies</i>	-2.5056	0.2462	103.5992	<.0001	***
<i>Energy production and distribution</i>	-4.1501	0.9963	17.3523	<.0001	***
<i>Healthcare and social initiatives</i>	-1.9961	0.2182	83.6520	<.0001	***
<i>Transport and storage</i>	-1.9769	0.1535	165.8362	<.0001	***
Manual trades					

	<i>Manual tradesperson</i>	0.1924	0.0366	27.5871	<.0001	***
Age of the company for Q-2 (reference: between 5 and 10 years)						
	<i>Less than 5 years</i>	0.1838	0.0431	18.2118	<.0001	***
	<i>Between 10 and 20 years</i>	-0.2479	0.0432	32.9765	<.0001	***
	<i>Between 20 and 30 years</i>	-0.2738	0.0527	26.9869	<.0001	***
	<i>More than 30 years</i>	-0.1648	0.0695	5.6232	0.0177	**
Age of the executive for Q-2 (reference: between 30 and 40 years)						
	<i>Less than 30 years</i>	0.1299	0.0722	3.2381	0.0719	*
	<i>Between 40 and 50 years</i>	-0.0436	0.0424	1.0564	0.3040	
	<i>Between 50 and 60 years</i>	0.1752	0.0449	15.2346	<.0001	***
	<i>More than 60 years</i>	0.4296	0.0579	55.0460	<.0001	***
Number of sites for Q-2 (reference: two sites)						
	<i>One single site</i>	-0.2566	0.0492	27.1935	<.0001	***
	<i>At least three sites</i>	0.5957	0.0923	41.6371	<.0001	***
Legal status for Q-2 (reference: sole trader)						
	<i>Company</i>	-0.5472	0.0428	163.0859	<.0001	***
Revenues for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	0.4076	0.1272	10.2686	0.0014	***
	<i>2nd quintile</i>	0.7475	0.1128	43.9354	<.0001	***
	<i>3rd quintile</i>	0.6640	0.1017	42.6320	<.0001	***
	<i>4th quintile</i>	0.4472	0.0876	26.0630	<.0001	***
GOS for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	-0.3598	0.1146	9.8547	0.0017	***
	<i>2nd quintile</i>	-0.1903	0.0889	4.5862	0.0322	**
	<i>3rd quintile</i>	-0.0443	0.0707	0.3916	0.5315	
	<i>4th quintile</i>	-0.0258	0.0610	0.1798	0.6716	
Number of employees for Q-2 (reference: last quintile)						
	<i>No data</i>	0.3602	0.1898	3.6002	0.0578	*
	<i>1st quintile</i>	-0.1203	0.1546	0.6056	0.4365	
	<i>2nd quintile</i>	-0.2023	0.1351	2.2424	0.1343	
	<i>3rd quintile</i>	-0.2660	0.1149	5.3556	0.0207	**
	<i>4th quintile</i>	-0.0951	0.0942	1.0192	0.3127	
Personnel expenses for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	0.3811	0.1693	5.0702	0.0243	**
	<i>2nd quintile</i>	0.3699	0.1525	5.8867	0.0153	**
	<i>3rd quintile</i>	0.3157	0.1365	5.3495	0.0207	**
	<i>4th quintile</i>	0.2153	0.1121	3.6902	0.0547	*
Tangible assets for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	-0.1840	0.0926	3.9503	0.0469	**
	<i>2nd quintile</i>	0.2361	0.0723	10.6679	0.0011	***
	<i>3rd quintile</i>	0.3121	0.0637	24.0213	<.0001	***
	<i>4th quintile</i>	0.2011	0.0561	12.8752	0.0003	***
Tangible investment for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	0.2352	0.0567	17.2276	<.0001	***
	<i>2nd quintile</i>	0.1905	0.0525	13.1876	0.0003	***

	<i>3rd quintile</i>	0.1858	0.0573	10.5241	0.0012	***
	<i>4th quintile</i>	0.1080	0.0657	2.7064	0.0999	*
Level of financial debt for Q-2 (reference: last quintile)						
	<i>1st quintile</i>	-0.2763	0.0977	8.0010	0.0047	***
	<i>2nd quintile</i>	-0.2951	0.0850	12.0395	0.0005	***
	<i>3rd quintile</i>	-0.0832	0.0685	1.4735	0.2248	
	<i>4th quintile</i>	0.00432	0.0551	0.0062	0.9374	
Balance sheet for T-2 (reference: last quintile)						
	<i>1st quintile</i>	0.4143	0.1141	13.1756	0.0003	***
	<i>2nd quintile</i>	0.5856	0.1021	32.8742	<.0001	***
	<i>3rd quintile</i>	0.6564	0.0937	49.0824	<.0001	***
	<i>4th quintile</i>	0.5335	0.0817	42.6850	<.0001	***
Level of workforce productivity for Q-2 (reference: last quintile)						
	<i>No ratio</i>	0.1797	0.0931	3.7230	0.0537	*
	<i>1st quintile</i>	0.3242	0.0848	14.6200	0.0001	***
	<i>2nd quintile</i>	0.3454	0.0760	20.6294	<.0001	***
	<i>3rd quintile</i>	0.3307	0.0706	21.9211	<.0001	***
	<i>4th quintile</i>	0.2340	0.0668	12.2697	0.0005	***
Economic profitability for Q-2 (reference: last quintile)						
	<i>No ratio</i>	1.5022	0.5873	6.5425	0.0105	**
	<i>1st quintile</i>	-0.1489	0.0694	4.5985	0.0320	**
	<i>2nd quintile</i>	-0.1115	0.0674	2.7359	0.0981	*
	<i>3rd quintile</i>	-0.0727	0.0578	1.5802	0.2087	
	<i>4th quintile</i>	0.0507	0.0508	0.9982	0.3177	
GOS/added value ratio for Q-2 (reference: last quintile)						
	<i>No ratio</i>	-0.8584	2.8862	0.0885	0.7661	
	<i>1st quintile</i>	0.2598	0.0976	7.0858	0.0078	***
	<i>2nd quintile</i>	0.0446	0.0766	0.3393	0.5602	
	<i>3rd quintile</i>	-0.00725	0.0628	0.0133	0.9081	
	<i>4th quintile</i>	-0.0593	0.0520	1.2990	0.2544	
Equity / balance sheet ratio for Q-2 (reference: last quintile)						
	<i>No ratio</i>	-0.8944	0.6172	2.1000	0.1473	
	<i>1st quintile</i>	-0.2606	0.0635	16.8293	<.0001	***
	<i>2nd quintile</i>	-0.1231	0.0594	4.2865	0.0384	**
	<i>3rd quintile</i>	-0.1018	0.0562	3.2884	0.0698	*
	<i>4th quintile</i>	-0.0735	0.0518	2.0122	0.1560	
Financial debt / GOS ratio for Q-2 (reference: last quintile)						
	<i>No ratio</i>	1.5734	2.8814	0.2982	0.5850	
	<i>1st quintile</i>	0.0142	0.0585	0.0592	0.8077	
	<i>2nd quintile</i>	-0.0992	0.0609	2.6576	0.1031	
	<i>3rd quintile</i>	-0.1759	0.0592	8.8392	0.0029	***
	<i>4th quintile</i>	-0.1291	0.0481	7.1931	0.0073	***
Liquidity ratio for Q-2 (reference: last quintile)						
	<i>No data</i>	0.5435	0.1881	8.3479	0.0039	***
	<i>1st quintile</i>	0.7720	0.0688	125.8979	<.0001	***
	<i>2nd quintile</i>	0.6214	0.0674	84.8935	<.0001	***

	<i>3rd quintile</i>	0.4053	0.0693	34.1693	<.0001	***
	<i>4th quintile</i>	0.2531	0.0709	12.7572	0.0004	***
Net-to-gross ratio for Q-2 (reference: last quintile)						
	<i>No ratio</i>	-1.0403	0.2610	15.8872	<.0001	***
	<i>1st quintile</i>	0.4285	0.0594	52.0702	<.0001	***
	<i>2nd quintile</i>	0.2916	0.0562	26.9587	<.0001	***
	<i>3rd quintile</i>	0.1797	0.0545	10.8860	0.0010	***
	<i>4th quintile</i>	0.1697	0.0509	11.1135	0.0009	***
Relative revenue growth between Q-3 and Q-2 (reference: last quintile)						
	<i>No change</i>	-0.8286	0.4412	3.5271	0.0604	*
	<i>1st quintile</i>	0.2583	0.0653	15.6413	<.0001	***
	<i>2nd quintile</i>	0.3652	0.0602	36.8212	<.0001	***
	<i>3rd quintile</i>	0.2275	0.0594	14.6746	0.0001	***
	<i>4th quintile</i>	0.1493	0.0579	6.6580	0.0099	***
Relative growth in GOS between Q-3 and Q-2 (reference: last quintile)						
	<i>No change</i>	1.1479	0.8457	1.8422	0.1747	
	<i>1st quintile</i>	0.0272	0.0568	0.2294	0.6320	
	<i>2nd quintile</i>	0.0426	0.0530	0.6455	0.4217	
	<i>3rd quintile</i>	0.0676	0.0494	1.8783	0.1705	
	<i>4th quintile</i>	0.0319	0.0491	0.4223	0.5158	
Absolute growth in workforce between Q-3 and Q-2 (reference: last quintile)						
	<i>No data</i>	-0.2378	0.1264	3.5384	0.0600	*
	<i>1st quintile</i>	0.0581	0.0683	0.7218	0.3955	
	<i>2nd quintile</i>	-0.0197	0.0743	0.0703	0.7910	
	<i>3rd quintile</i>	-0.0433	0.0627	0.4775	0.4896	
	<i>4th quintile</i>	-0.1005	0.0629	2.5519	0.1102	
Absolute growth in personnel expenses between Q-3 and Q-2 (reference: last quintile)						
	<i>1st quintile</i>	0.0432	0.0832	0.2693	0.6038	
	<i>2nd quintile</i>	-0.0786	0.0774	1.0324	0.3096	
	<i>3rd quintile</i>	-0.0611	0.0766	0.6355	0.4253	
	<i>4th quintile</i>	-0.0132	0.0708	0.0349	0.8518	
Relative growth in financial debt between Q-3 and Q-2 (reference: last quintile)						
	<i>No change</i>	-0.00038	0.0788	0.0000	0.9962	
	<i>1st quintile</i>	0.2278	0.0667	11.6713	0.0006	***
	<i>2nd quintile</i>	0.1885	0.0580	10.5726	0.0011	***
	<i>3rd quintile</i>	0.2182	0.0576	14.3700	0.0002	***
	<i>4th quintile</i>	0.0832	0.0598	1.9350	0.1642	
<hr/>						
	N	909,767				
	N supported	4,935				
	-2 L	54,410				
	Somers' D	63%				
	Adjusted R-squared	12%				

Appendix 2.2 - Comparison of the characteristics of companies obtaining a "buyout" guarantee for a planned business buyout and companies without a guarantee, before and after matching (2015 group, nearest neighbour matching method, 0.5 caliper x standard deviation for the propensity score)

Company distribution (column %)	Before matching		After matching	
	Companies with a guarantee	Companies without a guarantee	Companies with a guarantee	Companies without a guarantee
Age of the company in Q-2				
<i>Less than 5 years</i>	32%	30%	32%	29%
<i>Between 5 and 10 years</i>	25%	24%	25%	25%
<i>Between 10 and 20 years</i>	23%	25%	23%	24%
<i>Between 20 and 30 years</i>	14%	14%	14%	15%
<i>More than 30 years</i>	7%	7%	7%	6%
Age of the executive for Q-2				
<i>Less than 30 years</i>	5%	4%	5%	5%
<i>Between 30 and 40 years</i>				
<i>Between 40 and 50 years</i>	32%	35%	32%	33%
<i>Between 50 and 60 years</i>	31%	30%	31%	32%
<i>More than 60 years</i>	12%	12%	12%	12%
Number of sites for Q-2				
<i>One single site</i>	87%	88%	87%	86%
<i>Two sites</i>				
<i>At least three sites</i>	3%	3%	3%	3%
Legal status for Q-2				
<i>Sole trader</i>				
<i>Company</i>	60%	81%	60%	59%
Revenue for Q-2				
<i>1st quintile</i>	13%	20%	13%	14%
<i>2nd quintile</i>	31%	20%	31%	31%
<i>3rd quintile</i>	29%	20%	29%	30%
<i>4th quintile</i>	19%	20%	19%	19%
<i>Last quintile</i>	7%	20%	7%	7%
GOS for Q-2				
<i>1st quintile</i>	14%	20%	14%	14%
<i>2nd quintile</i>	20%	20%	20%	20%
<i>3rd quintile</i>	29%	20%	28%	29%
<i>4th quintile</i>	27%	20%	27%	26%
<i>Last quintile</i>	11%	20%	11%	11%
Number of employees for Q-2				
<i>No data</i>	20%	28%	20%	21%
<i>1st quintile</i>	16%	11%	16%	15%
<i>2nd quintile</i>	25%	17%	25%	24%
<i>3rd quintile</i>	19%	16%	19%	19%
<i>4th quintile</i>	14%	14%	14%	14%

	<i>Last quintile</i>	7%	15%	7%	7%
Personnel expenses for Q-2					
	<i>No data</i>	20%	28%	20%	21%
	<i>1st quintile</i>	25%	14%	25%	24%
	<i>2nd quintile</i>	23%	14%	23%	23%
	<i>3rd quintile</i>	17%	14%	17%	17%
	<i>4th quintile</i>	11%	15%	11%	10%
	<i>Last quintile</i>	24%	42%	24%	25%
Level of tangible assets for Q-2					
	<i>1st quintile</i>	7%	20%	7%	7%
	<i>2nd quintile</i>	23%	20%	23%	24%
	<i>3rd quintile</i>	30%	20%	30%	31%
	<i>4th quintile</i>	26%	20%	26%	25%
	<i>Last quintile</i>	14%	20%	14%	13%
Tangible investment for Q-2					
	<i>1st quintile</i>	21%	20%	21%	20%
	<i>2nd quintile</i>	29%	20%	29%	29%
	<i>3rd quintile</i>	24%	20%	24%	24%
	<i>4th quintile</i>	13%	20%	13%	13%
	<i>Last quintile</i>	13%	20%	13%	14%
Financial debt for Q-2					
	<i>1st quintile</i>	16%	25%	16%	16%
	<i>2nd quintile</i>	13%	15%	13%	14%
	<i>3rd quintile</i>	25%	20%	25%	25%
	<i>4th quintile</i>	29%	20%	29%	28%
	<i>Last quintile</i>	16%	20%	16%	16%
Balance sheet for T-2					
	<i>1st quintile</i>	16%	20%	16%	17%
	<i>2nd quintile</i>	27%	20%	27%	25%
	<i>3rd quintile</i>	30%	20%	30%	29%
	<i>4th quintile</i>	21%	20%	21%	21%
	<i>Last quintile</i>	7%	20%	7%	7%
Level of workforce productivity for Q-2					
	<i>No data</i>	20%	28%	20%	21%
	<i>No ratio</i>	5%	3%	5%	5%
	<i>1st quintile</i>	19%	14%	19%	20%
	<i>2nd quintile</i>	18%	14%	18%	17%
	<i>3rd quintile</i>	16%	14%	16%	16%
	<i>4th quintile</i>	13%	14%	13%	13%
	<i>Last quintile</i>	9%	14%	9%	9%
Economic profitability for Q-2					
	<i>No ratio</i>	0%	1%	0%	0%
	<i>1st quintile</i>	15%	20%	15%	15%
	<i>2nd quintile</i>	20%	20%	20%	19%
	<i>3rd quintile</i>	24%	20%	24%	24%
	<i>4th quintile</i>	26%	20%	26%	26%

	<i>Last quintile</i>	15%	20%	15%	15%
GOS/added value ratio for Q-2					
	<i>No data</i>	0%	0%	0%	0%
	<i>No ratio</i>	0%	0%	0%	0%
	<i>1st quintile</i>	16%	20%	16%	16%
	<i>2nd quintile</i>	17%	20%	17%	16%
	<i>3rd quintile</i>	22%	20%	22%	21%
	<i>4th quintile</i>	27%	20%	27%	27%
	<i>Last quintile</i>	19%	20%	19%	19%
Equity / balance sheet ratio for Q-2					
	<i>No ratio</i>	0%	1%	0%	0%
	<i>1st quintile</i>	23%	20%	23%	23%
	<i>2nd quintile</i>	21%	20%	21%	21%
	<i>3rd quintile</i>	19%	20%	19%	19%
	<i>4th quintile</i>	18%	20%	18%	18%
	<i>Last quintile</i>	19%	21%	19%	19%
Financial debt / GOS ratio for Q-2					
	<i>No ratio</i>	0%	0%	0%	0%
	<i>1st quintile</i>	13%	20%	13%	12%
	<i>2nd quintile</i>	14%	20%	14%	15%
	<i>3rd quintile</i>	21%	20%	21%	21%
	<i>4th quintile</i>	28%	20%	28%	29%
	<i>Last quintile</i>	24%	20%	24%	22%
Liquidity ratio for Q-2					
	<i>No data</i>	1%	2%	1%	1%
	<i>1st quintile</i>	40%	20%	40%	39%
	<i>2nd quintile</i>	27%	20%	27%	28%
	<i>3rd quintile</i>	15%	20%	15%	15%
	<i>4th quintile</i>	10%	20%	10%	9%
	<i>Last quintile</i>	8%	20%	8%	8%
Net-to-gross ratio for Q-2					
	<i>No ratio</i>	1%	5%	1%	0%
	<i>1st quintile</i>	23%	19%	23%	23%
	<i>2nd quintile</i>	21%	19%	21%	22%
	<i>3rd quintile</i>	19%	19%	19%	19%
	<i>4th quintile</i>	20%	19%	20%	19%
	<i>Last quintile</i>	16%	19%	16%	16%
Relative revenue growth between Q-3 and Q-2					
	<i>No ratio</i>	0%	2%	0%	0%
	<i>1st quintile</i>	17%	20%	17%	17%
	<i>2nd quintile</i>	29%	20%	29%	30%
	<i>3rd quintile</i>	24%	20%	24%	24%
	<i>4th quintile</i>	19%	20%	19%	19%
	<i>Last quintile</i>	11%	20%	11%	10%
Relative GOS growth between Q-3 and Q-2					
	<i>No ratio</i>	0%	0%	0%	0%

<i>1st quintile</i>	15%	20%	16%	15%
<i>2nd quintile</i>	20%	20%	20%	20%
<i>3rd quintile</i>	27%	20%	27%	27%
<i>4th quintile</i>	23%	20%	23%	22%
<i>Last quintile</i>	16%	20%	15%	15%
Absolute growth in workforce between Q-3 and Q-2				
<i>No data</i>	22%	30%	22%	23%
<i>1st quintile</i>	19%	16%	19%	18%
<i>2nd quintile</i>	8%	6%	8%	9%
<i>3rd quintile</i>	27%	21%	27%	26%
<i>4th quintile</i>	14%	13%	14%	14%
<i>Last quintile</i>	10%	13%	10%	10%
Absolute growth in personnel expenses between Q-3 and Q-2				
<i>No data</i>	22%	30%	22%	23%
<i>1st quintile</i>	14%	14%	14%	14%
<i>2nd quintile</i>	21%	14%	21%	20%
<i>3rd quintile</i>	21%	14%	21%	21%
<i>4th quintile</i>	16%	14%	16%	15%
<i>Last quintile</i>	7%	14%	7%	7%
Relative increase in financial debt between Q-3 and Q-2				
<i>No ratio</i>	15%	24%	15%	15%
<i>1st quintile</i>	15%	15%	15%	15%
<i>2nd quintile</i>	21%	15%	21%	21%
<i>3rd quintile</i>	24%	15%	24%	24%
<i>4th quintile</i>	14%	15%	14%	14%
<i>Last quintile</i>	11%	15%	11%	11%

Appendix 2.3: placebo test for the 2015 group – impact results between Q-3 and Q-2

Indicator between Q-3 and Q-2	Total panel	Estimated placebo effect between Q-3 and Q-2	P-value
<i>Net tangible investment (in euros)</i>	4,935	-0.5	0.461
<i>Revenue (in ppt)</i>	4,935	0.0	0.810
<i>Gross Operating Surplus (in ppt)</i>	4,935	0.2	0.237
<i>Jobs (in number of employees)</i>	4,935	0.0	0.817

Appendix 3

Appendix 3.1 : summary of the impacts of the "buyout" guarantee over a 3-year period for the 2012 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2	Nearest neighbour matching with 2 neighbours	Nearest neighbour matching with 3 neighbours	Matching with a territorial variable added ¹¹
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	587 325	2 433	7,5*** (0,74)	17***	7,5*** (0,52)	7,7*** (0,43)	7,9*** (0,72)
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	612 979	2 799	21,7*** (3,30)	14***	16,5*** (2,39)	19,2*** (1,94)	18,2*** (3,36)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	612 979	2 799	5,1*** (0,74)	23***	4,5*** (0,52)	4,4*** (0,42)	4,4*** (0,71)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	453 172	2 157	NS (0,04)	NS	NS (0,03)	NS (0,02)	NS (0,04)
Productivity level for Q+3 <i>(in €k for FTE)</i>	427 259	1 956	3,6*** (1,12)	7***	2,8*** (0,82)	2,8*** (0,66)	2,8** (1,12)
Closure rate between Q and Q+3	807 729	4 591	-2,1*** (0,01)		-1,3*** (0,01)	-1,2*** (0,01)	-1,3** (0,01)

Appendix 3.2 : summary of the impacts of the "buyout" guarantee over a 3-year period for the 2013 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2	Nearest neighbour matching with 2 neighbours	Nearest neighbour matching with 3 neighbours	Matching with a territorial variable added ¹²
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	622 032	2 610	7,8*** (0,71)	17***	8,0*** (0,52)	8,3*** (0,42)	7,5*** (0,74)
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	639 901	2 947	31,8*** (3,55)	19***	29,9*** (-2,51)	28,2*** (2,06)	30,6*** (3,58)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	639 901	2 947	4,4*** (0,79)	20***	5,2*** (0,57)	4,8*** (0,46)	4,6*** (0,81)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	468 666	2 313	0,1** (0,05)	5**	0,1*** (0,03)	0,2*** (0,03)	0,1*** (0,04)

¹¹ Adding this variable to the model restricts the territorial location of companies other than using the region, by differentiating companies depending on whether they are located in a municipality with a high-density population, low-density population or very-low-density population (INSEE classification).

¹² Adding this variable to the model restricts the territorial location of companies other than using the region, by differentiating companies depending on whether they are located in a municipality with a high-density population, low-density population or very-low-density population (INSEE classification).

Productivity level for Q+3 <i>(in €k for FTE)</i>	432 738	2 152	2,8*** (0,91)	6***	1,5** (0,66)	1,8*** (0,53)	1,8* (0,92)
Closure rate between Q and Q+3	836 935	4 740	-2,7*** (0,01)		-2,7*** (0,01)	-2,8*** (0,01)	-2,1*** (0,01)

Appendix 3.3 : summary of the impacts of the "buyout" guarantee over a 3-year period for the 2014 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2	Nearest neighbour matching with 2 neighbours	Nearest neighbour matching with 3 neighbours	Matching with a territorial variable added ¹³
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	650 476	2 959	8,8*** (0,76)	17***	8,6*** (0,52)	8,6*** (0,43)	8,6*** (0,73)
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	661 761	3 100	29,1*** (3,64)	16***	26,8*** (2,60)	29,7*** (2,06)	31,4*** (3,62)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	661 761	3 100	5,2*** (0,79)	25***	6,6*** (0,57)	6,0*** (0,47)	6,3*** (0,81)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	492 188	2 525	NS (0,05)	NS	NS (0,03)	0,1** (0,03)	0,1** (0,04)
Productivity level for Q+3 <i>(in €k for FTE)</i>	462 547	2 345	4,0*** (0,95)	8***	4,1*** (0,69)	3,0*** (0,56)	3,7*** (0,95)
Closure rate between Q and Q+3	869 247	4 921	-3,1*** (0,01)		-3,4*** (0,01)	-3,3*** (0,01)	-3,7*** (0,01)

Appendix 3.3 : summary of the impacts of the "buyout" guarantee over a 3-year period for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2	Nearest neighbour matching with 2 neighbours	Nearest neighbour matching with 3 neighbours	Matching with a territorial variable added ¹⁴
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	660 846	2 797	8,2*** (0,84)	16***	8,3*** (0,58)	8,8*** (0,48)	9,2*** (0,81)

¹³ Adding this variable to the model restricts the territorial location of companies other than using the region, by differentiating companies depending on whether they are located in a municipality with a high-density population, low-density population or very-low-density population (INSEE classification).

¹⁴ Adding this variable to the model restricts the territorial location of companies other than using the region, by differentiating companies depending on whether they are located in a municipality with a high-density population, low-density population or very-low-density population (INSEE classification).

Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	673 538	2 938	28,9*** (3,90)	14***	31,6*** (2,73)	29,9*** (2,20)	31,4*** (3,87)
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	673 538	2 938	5,2*** (0,84)	26***	6,2*** (0,60)	6,0*** (0,49)	5,6*** (0,85)
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	496 523	2 348	0,1** (0,05)	6**	0,1** (0,03)	0,1*** (0,03)	0,1** (0,05)
Productivity level for Q+3 <i>(in €k for FTE)</i>	465 161	2 218	NS (1,06)	NS	1,4** (0,73)	2,3*** (0,60)	NS (1,06)
Closure rate between Q and Q+3	909 767	4 935	-3,8*** (0,01)		-3,8*** (0,01)	-3,7*** (0,01)	-3,7*** (0,01)

Appendix 4

Appendix 4.1 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged over 50 prior to obtaining the guarantee, for the 2012 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	215 198	1 010	8,4*** (1,12)	17***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	224 808	1 159	51,1*** (5,57)	31***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	224 808	1 159	7,6*** (1,23)	34***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	166 849	867	0,2*** (0,07)	10***
Productivity level for Q+3 <i>(in €k for FTE)</i>	154 668	831	3,8** (1,78)	8**
Closure rate between Q and Q+3 <i>(in ppt)</i>	307 245	1 841	-5,9*** (0,01)	

Annexe 4.2 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged over 50 prior to obtaining the guarantee, for the 2013 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	234 697	1 152	9,5*** (1,10)	18***

Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	241 571	1 282	51,6*** (5,97)	28***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	241 571	1 282	6,3*** (1,28)	28***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	178 206	987	0,3*** (0,07)	15***
Productivity level for Q+3 <i>(in €k for FTE)</i>	160 340	947	4,2*** (1,40)	8***
Closure rate between Q and Q+3 <i>(in ppt)</i>	327 892	1 962	-6,1*** (0,01)	

Appendix 4.3 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged over 50 prior to obtaining the guarantee, for the 2014 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	253 144	1 338	8,2*** (1,07)	13***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	257 655	1 400	53,5*** (5,87)	27***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	257 655	1 400	8,4*** (1,27)	40***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	192 129	1 120	0,2*** (0,07)	10***
Productivity level for Q+3 <i>(in €k for FTE)</i>	179 848	1 067	3,3** (1,51)	7**
Closure rate between Q and Q+3 <i>(in ppt)</i>	350 315	2 161	-6,7*** (0,01)	

Appendix 4.4 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged over 50 prior to obtaining the guarantee, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	265 590	1 245	10,4*** (1,26)	19***
Growth in revenue between Q-2 and Q+3	270 772	1 310	48,5***	26***

<i>(in €k)</i>			(6,31)	
Growth in gross operating surplus between Q-2 and Q+3	270 772	1 310	6,6***	33***
<i>(in €k)</i>			(1,34)	
Growth in FTE jobs between Q-2 and Q+3	199 967	1 022	0,2**	11**
<i>(in number of FTE employees)</i>			(0,08)	
Productivity level for Q+3	185 238	1 012	2,9*	6*
<i>(in €k for FTE)</i>			(1,61)	
Closure rate between Q and Q+3	376 640	2 159	-8,4***	
<i>(in ppt)</i>			(0,01)	

Annexe 4.5 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged below 50 prior to obtaining the guarantee, for the 2012 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3	345 970	1 259	8,4***	20***
<i>(in €k)</i>			(1,05)	
Growth in revenue between Q-2 and Q+3	360 549	1 446	NS	NS
<i>(in €k)</i>			(4,23)	
Growth in gross operating surplus between Q-2 and Q+3	360 549	1 446	2,5***	11***
<i>(in €k)</i>			(0,95)	
Growth in FTE jobs between Q-2 and Q+3	267 552	1 147	NS	NS
<i>(in number of FTE employees)</i>			(0,06)	
Productivity level for Q+3	253 897	999	NS	NS
<i>(in €k for FTE)</i>			(1,56)	
Closure rate between Q and Q+3	462 010	2 430	NS	
<i>(in ppt)</i>			(0,01)	

Appendix 4.6 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged below 50 prior to obtaining the guarantee, for the 2013 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3	360 779	1 272	7,0***	15***
<i>(in €k)</i>			(1,18)	
Growth in revenue between Q-2 and Q+3	370 778	1 462	9,6**	6**
<i>(in €k)</i>			(4,46)	
Growth in gross operating surplus between Q-2 and Q+3	370 778	1 462	3,9***	18***

<i>(in €k)</i>			(1,07)	
Growth in FTE jobs between Q-2 and Q+3	272 063	1 178	0,1**	6**
<i>(in number of FTE employees)</i>			(0,07)	
Productivity level for Q+3	254 112	1 069	NS	NS
<i>(in €k for FTE)</i>			(1,28)	
Closure rate between Q and Q+3	471 199	2 450	NS	
<i>(in ppt)</i>			(0,01)	

Appendix 4.7 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged below 50 prior to obtaining the guarantee, for the 2014 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3	370 617	1 430	8,3***	17***
<i>(in €k)</i>			(1,14)	
Growth in revenue between Q-2 and Q+3	376 776	1 497	15,5***	8***
<i>(in €k)</i>			(4,68)	
Growth in gross operating surplus between Q-2 and Q+3	376 776	1 497	5,5***	26***
<i>(in €k)</i>			(1,07)	
Growth in FTE jobs between Q-2 and Q+3	281 018	1 247	NS	NS
<i>(in number of FTE employees)</i>			(0,06)	
Productivity level for Q+3	264 452	1 142	NS	NS
<i>(in €k for FTE)</i>			(1,39)	
Closure rate between Q and Q+3	481 273	2 443	NS	
<i>(in ppt)</i>			(0,01)	

Appendix 4.8 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses directed by an executive aged below 50 prior to obtaining the guarantee, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3	369 100	1 412	8,0***	16***
<i>(in €k)</i>			(1,10)	
Growth in revenue between Q-2 and Q+3	375 922	1 473	19,4***	11***
<i>(in €k)</i>			(4,94)	
Growth in gross operating surplus between Q-2 and Q+3	375 922	1 473	4,6***	23***
<i>(in €k)</i>			(1,18)	

Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	277 908	1 214	NS (0,07)	NS
Productivity level for Q+3 <i>(in €k for FTE)</i>	261 750	1 111	NS (1,43)	NS
Closure rate between Q and Q+3 <i>(in ppt)</i>	495 501	2 521	-1,6** (0,01)	

Appendix 4.9 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is greater than the median value, for the 2012 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	586 173	1 281	7,6*** (0,98)	18***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	611 665	1 485	26,0*** (4,06)	17***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	611 665	1 485	6,1*** (0,90)	29***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	452 158	1 143	NS (0,06)	NS
Productivity level for Q+3 <i>(in €k for FTE)</i>	426 359	1 056	3,6** (1,61)	8**
Closure rate between Q and Q+3 <i>(in ppt)</i>	805 433	2 296	-3,2*** (0,01)	

Appendix 4.10 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is greater than the median value, for the 2013 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	620 787	1 365	6,7*** (1,02)	14***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	638 509	1 555	37,3*** (3,93)	23***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	638 509	1 555	5,8*** (0,97)	27***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	467 584	1 231	0,2*** (0,06)	11***

Productivity level for Q+3 <i>(in €k for FTE)</i>	431 742	1 156	2,8** (1,14)	6**
Closure rate between Q and Q+3 <i>(in ppt)</i>	834 565	2 370	-3,4*** (0,01)	

Appendix 4.11 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is greater than the median value, for the 2014 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	649 072	1 555	9,3*** (0,98)	17***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	660 295	1 634	32,9*** (4,20)	18***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	660 295	1 634	8,5*** (1,04)	40***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	491 033	1 370	0,2*** (0,06)	11***
Productivity level for Q+3 <i>(in €k for FTE)</i>	461 496	1 294	5,9*** (1,24)	12***
Closure rate between Q and Q+3 <i>(in ppt)</i>	866 786	2 460	-4,9*** (0,01)	

Appendix 4.12 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is greater than the median value, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	659 533	1 484	9,4*** (1,10)	19***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	672 155	1 555	38,2*** (4,97)	22***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	672 155	1 555	6,8*** (1,08)	34***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	495 438	1 263	0,3*** (0,07)	20***
Productivity level for Q+3 <i>(in €k for FTE)</i>	464 154	1 211	NS (1,39)	NS

Closure rate between Q and Q+3 <i>(in ppt)</i>	907 299	2 467	-5,6*** (0,01)
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Appendix 4.13 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is less than the median value, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	586 044	1 152	6,2*** (1,15)	14***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	611 494	1 314	11,7** (5,94)	7**
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	611 494	1 314	NS (1,21)	NS
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	452 029	1 014	NS (0,07)	NS
Productivity level for Q+3 <i>(in €k for FTE)</i>	426 203	900	NS (1,70)	NS
Closure rate between Q and Q+3 <i>(in ppt)</i>	805 434	2 296	NS (0,01)	

Appendix 4.14 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is less than the median value, for the 2013 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 <i>(in €k)</i>	620 667	1 245	9,4*** (1,10)	20***
Growth in revenue between Q-2 and Q+3 <i>(in €k)</i>	638 346	1 392	21,0*** (7,06)	12***
Growth in gross operating surplus between Q-2 and Q+3 <i>(in €k)</i>	638 346	1 392	4,0*** (1,42)	18***
Growth in FTE jobs between Q-2 and Q+3 <i>(in number of FTE employees)</i>	467 435	1 082	NS (0,07)	NS
Productivity level for Q+3 <i>(in €k for FTE)</i>	431 582	996	NS (1,50)	NS
Closure rate between Q and Q+3	834 565	2 370	-2,1**	

(in ppt)

(0,01)

Appendix 4.15 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is less than the median value, for the 2014 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 (in €k)	648 921	1 404	9,4*** (1,08)	19***
Growth in revenue between Q-2 and Q+3 (in €k)	660 127	1 466	NS (6,74)	NS
Growth in gross operating surplus between Q-2 and Q+3 (in €k)	660 127	1 466	2,8** (1,33)	14***
Growth in FTE jobs between Q-2 and Q+3 (in number of FTE employees)	490 818	1 155	-0,1** (0,07)	-6***
Productivity level for Q+3 (in €k for FTE)	461 253	1 051	NS (1,54)	NS
Closure rate between Q and Q+3 (in ppt)	866 787	2 461	-2,3*** (0,01)	

Appendix 4.16 : summary of the impacts of the "buyout" guarantee over a 3-year period, on the panel of businesses for which the relative amount of the guaranteed loan is less than the median value, for the 2015 support group

Impact indicators	Total panel	Of which matched beneficiary companies	Nearest neighbour matching	Result as an % of the initial level of the variable in Q-2
Total net investment rate between Q+1 and Q+3 (in €k)	659 362	1 313	7,9*** (1,15)	15***
Growth in revenue between Q-2 and Q+3 (in €k)	671 983	1 383	22,3*** (6,12)	12***
Growth in gross operating surplus between Q-2 and Q+3 (in €k)	671 983	1 383	4,0*** (1,31)	20***
Growth in FTE jobs between Q-2 and Q+3 (in number of FTE employees)	495 260	1 085	NS (0,08)	NS
Productivity level for Q+3 (in €k for FTE)	463 950	1 007	NS (1,58)	NS
Closure rate between Q and Q+3 (in ppt)	907 300	2 468	-2,8** (0,01)	

Appendices of the report

Composition of the steering committee

A steering committee was set up to oversee the study and provide a critical opinion about its methodology and its results. This steering committee brought together, in addition to Bpifrance, economists and academic researchers, all having extensive experience in corporate finance and scientific methods for public policy evaluation. Three referee reports, appended at the end of this document, summarize the scientific judgement of the researchers who participated in this committee. During this study, the committee included:

- Mr. Rudiger Ahrend, Head of Division « Economic Analysis & Statistics » at the OECD, Centre for Entrepreneurship, SMEs, Regions and Cities;
- Mrs Hind Benitto, Deputy Head of Unit of Economic Analysis of the Financial Sector at the French Treasury;
- Mr. Emmanuel Betry, Head of Unit of Economic Analysis of the Financial Sector at the French Treasury;
- Mr. Julien Brault, Research Officer at the Research and Market Analysis Division of the European Investment Fund (EIF);
- Mr. Louis Boillot, Deputy Head of Corporate Financing and Development at the French Treasury;
- Mrs Sarah Finkelstein, Head of Corporate Financing and Development at the French Treasury;
- Mr. Etienne Floret, Deputy Head of Corporate Financing and Development at the French Treasury;
- Mr. Thomas Humblot, Banking Economist at BNP Paribas;
- Mrs Nadine Levratto, CNRS Research Professor, Director of EconomiX Lab (CNRS, University Paris Nanterre);
- Mr. Laurent Quignon, Head of Banking Economics at BNP Paribas;
- Mr. Sebastian Schich, Senior Economist at the European Investment Bank (EIB);
- Mr. Simone Signore, Research Officer at the Research and Market Analysis Division of the European Investment Fund (EIF);
- Mr. Ahmed Tritah, Professor at University of Poitiers, Crief; Mines ParisTech, Cerna.

Referee reports

**Referee report of Mrs. Nadine Levratto, CNRS research professor, Director of EconomiX Lab (CNRS, University Paris Nanterre)
Octobre 2021**

This Bpifrance study focuses on financing business transfers, an issue that has not yet been widely addressed in the literature due to the decentralized nature of the transactions and the lack of data on them. The study covers, in particular, the impact of granting a guaranteed loan to complete the transaction and seeks to determine the extent to which giving a delegated or notified guarantee influences the prospects of a company. The assessment, based on a single database, uses the propensity score matching method combined with a double-difference approach. One may thus compare transferred companies with a guaranteed bank loan and similar companies without a bank loan that has not necessarily been transferred. In addition to the genuinely interesting results, which show the greater growth prospects achieved when secured financing is obtained, this study is characterised by the careful literature review, the thoroughness of the composition of the samples compared, the rigour of the analysis and the stability of the results due to the many robustness tests performed. However, the study's main weakness lies in the sample's composition. Despite the authors' caution, the heterogeneity of the control group weakens the significance of the results. It includes an unknown proportion of companies that have been taken over without applying for a guarantee and companies that have not been transferred, and these are the majority. Furthermore, the approach does not allow to break down the takeovers by the sellers' reasons for selling or any links they may have with the buyer, even though these aspects, which are difficult to quantify on a large scale, determine the quality of the business transferred and its future. Despite these limitations, this study nevertheless represents an important new insight into a process that is still poorly understood.

1. Business transfers, a recurring theme

Business transfers have long been a concerning issue for the entrepreneurs themselves, the organizations that represent them, and public decision-makers. Books, training courses, and websites dealing with preparation, organization, and running transfers are legions. The literature review conducted by Lex van Teeffelen in his 2012 article¹⁵ shows interest in this subject dating back to the late 1980s. In France, in 2013, an article entitled "Le lancinant problème de la transmission..." ("The nagging problem of business transfers...") in the *Revue des Sciences de Gestion*¹⁶, also shows the recurrent issue of business takeovers and transfers.

Despite the attention and the interest paid to this key stage in the life of the company and the entrepreneur, the observation has remained the same for years. Transferring a business is still too difficult to organize. Proof of this is the steady decline in transfers which, according to the BPCE Observatoire¹⁷ continues in France and remains ignored by public policy. The small size of business entities is one of the main factors responsible for the tight supply in this market. The surge in businesses without employees since the creation of the self-employed category in 2009, often without tangible or intangible assets, is mainly responsible for the ten-year decline observed in the supply. Among the businesses that can be taken over, the managers' ageing demographic profile

¹⁵ Lex van Teeffelen, *Avenues to improve success in SME business transfers*. Available online: <https://www.bedrijfsovernameregister.nl/upload/user/files/Onderzoek%20structurele%20weeffouten%20in%20overnamemarkt.pdf>

¹⁶ Philippe Naszályi, *Le lancinant problème de la transmission des entreprises... Des pistes innovantes pour maintenir l'emploi et l'activité économique : La transmission aux salariés...*(The nagging problem of business transfers...Innovative ways to maintain employment and economic activity : The transfer to employees) *La Revue des Sciences de Gestion*, 2013, Direction et Gestion n° 259-260, pages 1 to 3.

¹⁷ BPCE L'Observatoire, *La Cession-Transmission des entreprises en France (The Sale-Transfer of businesses in France)*, Les Carnets de BPCE L'Observatoire 2019, available online: <https://groupebpce.com/etudes-economiques/les-carnets-de-bpce-l-observatoire-2019>

and the sectoral disparities, particularly in the manufacturing industry where mergers are often preferred, call for action to promote takeovers.

The study on the ASSESSMENT OF THE ECONOMIC IMPACT OF TRANSFERS FINANCED BY GUARANTEE FUNDS carried out by Bpifrance highlights a tool to facilitate transfers. It assumes that the transfer of a business provides advantages in terms of survival, job creation, and return on capital, an assumption broadly supported by economists and the academic literature. However, based on the literature and public reports, the study's authors note the obstacles to completing these transactions, which are not well known due to the lack of centralized information on the subject. The non-financial barriers to transfers, which are briefly mentioned, mainly concern the potential sellers' unpreparedness and the information asymmetry that obfuscates discussions during the negotiations between the sellers and buyers. In addition to these two factors, there is a specific national characteristic of regional disparities, with some regions having a surplus of potential sellers, while some others have an imbalance in favor of buyers. However, the study aims to focus on the financial obstacles due to the importance of this factor in the literature and the institutional positioning of the authors.

2. Key results of the Bpifrance study, remarks, and suggestions

The financial obstacles to takeovers are evidenced in the literature, which emphasizes the high cost of the transaction for the investor, which justifies the buyers' frequent use of debt. Access to credit would thus be the main barrier to remove to make the transfer and takeover process smoother. In this area, the offer of a guarantee is complementary to direct aid in facilitating access to bank debt. The guarantee schemes covered by Bpifrance's "creation" and "transfer" guarantee funds are consistent with this approach. Bpifrance plays an active role in this respect since, as the study highlights, "over the 2012-2019 period, loans backed by the "creation" fund to finance proposed transfers represent approximately €1.2 billion for nearly 9,300 separate companies". Most of the guarantees granted concern the purchase of company shares and, to a much lesser extent, the creation of new companies through takeovers.

By removing the financing constraint, the impact of this guarantee on the takeover and the company's future is a priori considered positive, even if it is difficult to determine the causality between the two phenomena. It comes from the fact that the support mainly covers the transfer and is not reflected in a specific transaction carried out by the company. This non-allocated nature of Bpifrance's support, consistent with buyers' needs, complicates the task of evaluating the mechanism's impact. In addition to this first difficulty, not all loan applications sent to banks for such transactions come with guarantee applications. When there are guarantees, they are not allocated randomly. Still, they result from choices made either by the banks' teams for "delegated" guarantees or by Bpifrance's teams for "notified" guarantees. Moreover, and this third element further constrains methodological options, this system potentially covers all SMEs. This broad coverage leaves no other option than propensity score matching to carry out the impact assessment. Although this method is constrained and wholly justified, in this case, it has limitations that tend to weaken the scope of the results to a certain extent, despite the precautions taken by the authors.

The most important limitation concerns the composition of the control group. Indeed, comparing the impact, in this case, of obtaining a guarantee for a business takeover, assumes that we can ensure that the companies in the control group (i) did not have any other guarantee, (ii) could effectively be sold and not simply closed down by their manager, and (iii) did not have an application rejected by Bpifrance. As things stand, this complete independence between the two groups was not proved. A doubt remains despite the *ex-post* comparison of the proportion of companies transferred in the counterfactual and in the total sample, which ensures that the counterfactual does indeed include companies likely to be sold. On this basis, the reliability of the propensity score may therefore be questioned. Since the structure of the data does not eliminate the risks of bias linked to the composition of the two groups, doubts remain about the robustness of the results, which are nevertheless rich and interesting.

The first notable effect concerns the positive impact of the "transfer" guarantee on the sustainability of businesses since the rate of closure of firms transferred due to guaranteed financing is lower than that of firms in the control group. Approximating the loss ratio by the closure of businesses, measured using a variable that specifies whether the company remains a going concern over the next three years, raises some difficulties. Indeed, most closures do not involve insolvency proceedings, which reflect severe economic problems. The other cases may either describe a top-down exit (merger or integration into a group) or a "silent" closure, with the

company's liabilities justifying neither a bankruptcy filing nor a referral to the commercial court by creditors. The difference is evidenced by the difference in coefficients obtained when all closures or only court-mandated liquidations are taken into account.

Second, the study shows that the levels of property, plant and equipment expenditure, sales growth, and gross operating profit of companies with guarantees are higher than the counterfactual, consistent with the expected impacts. The observed effects are higher when the analysis targets the population of older sellers (50 years and older). On the other hand, the impact on employment is far from proven. These differences are due to the sectors concerned and the significant position of the Accommodation and Catering sectors, which have not been a considerable employment driver despite the reduction in VAT. More fundamentally, the differences in significance observed for the accounting variables, and the number of employees confirms the gap between the objectives of entrepreneurs, who are more focused on financial indicators, and those of public actors, who are more concerned with employment¹⁸.

Overall, these favorable results for the guarantee scheme in takeovers confirm those previously obtained for the creation guarantee, another Bpifrance scheme that was assessed using a similar methodology. However, as the study points out in the introduction and discussion of the results, the method used does not definitively conclude causality between obtaining a guarantee and the trajectory of the business taken over. Further research is needed to understand the mechanisms underlying the improvements observed.

3. Outstanding issues and outlook

A better understanding of exit mechanisms, especially the trade-off between a bankruptcy filing (a precursor to liquidation) and a sale, would shed light on how the takeover "market" works. Indeed, some studies show that the characteristics of a company's resources (prior revenue, independence of the company from its owner and size), as well as the owner's specific human capital (acquisition experience, for example), predict the exit choice¹⁹. In this case, the personal experience of the entrepreneur would interfere with that of the company in determining the type of exit considered.

Another question left open in this study concerns the role of information asymmetry, which may be understood in terms of two considerations: the type of buyer and the mode of transfer.

Regarding the buyer's profile, a growing body of literature on this subject differentiates between the types of buyers. Indeed, in the absence of a family successor able and willing to invest in the business, he or she inherits²⁰, the success of a business transfer depends mainly on identifying potential buyers. Matching supply and demand is thus an essential condition of success, acknowledged by the Dutreil Law of 2005, which promoted SMEs and allows a support period of between two months and one year between seller and buyer. This mentoring period, however, remains shorter than that recommended by the European Commission²¹, and many buyers are essentially *outsiders*. One option, which could be explored in greater depth insofar as it responds to the specific handover issue between the seller and the buyer, is the transfer to employees. In France, this has been facilitated by the law of 31 July 2014 on the social and solidarity economy, which introduced a new obligation to inform employees, intended to help them take over the business. Using a methodology similar to that of the impact

¹⁸ Leona Achtenhagen, Lucia Naldi and Leif Melin, "Business growth" - Do practitioners and scholars really talk about the same thing? *Entrepreneurship, Theory and Practice*, 2010, 34(2), 289-316

¹⁹ Lex van Teeffelen and Lorraine M. Uhlaner, Firm Resource Characteristics and Human Capital as Predictors of Exit Choice: An Exploratory Study of SMEs, *Entrepreneurship Research Journal*, 3(1). Available online: <https://www.degruyter.com/document/doi/10.1515/erj-2012-0008/html>

²⁰ Isabella R. Hatak and Dietmar Roessl (2013). Relational competence-based knowledge transfer within intrafamily succession. *Family Business Review*, 28(1), 10-25. doi:10.1177/0894486513480386

²¹ European Commission, *Business dynamics: start-ups, business transfers, and bankruptcy*, 2011. [Online publication]. Brussels: European Commission. Available online: http://ec.europa.eu/enterprise/policies/sme/business-environment/files/business_dynamics_final_report_en.pdf.

assessment of the transfer guarantee, a recent article²² reports on the influence of the buyer's identity on a company's prospects. Cross-referencing this information with the granting of the guarantee could thus lead to a better understanding of this crucial stage in the company's life. The Bpifrance transfer guarantee could be combined with the takeover tools set up by the Confédération générale des SCOP (CGSCOP), France Active, the Nef or Crédit Coopératif. It could therefore help to reduce the information asymmetry mentioned at the beginning of this study.

The mode of transfer is also a critical factor in analyzing the consequences of a takeover. Indeed, the level of expertise required of a potential buyer is both important and varied. Technical, legal, accounting, managerial knowledge, etc., are all necessary to prepare credible forecasts of a company's outlook. Therefore, it is understandable that acquisitions by other companies with these skills, internal or subcontracted, are more often successful than those involving individual buyers, notwithstanding their unequal financial resources. In highly opaque markets, specialized intermediaries may, as in any form of intermediation, help to reduce information asymmetries between buyers and sellers²³. This is particularly the case for small business owners, who have to seek help from a range of advisors covering a variety of activities throughout the transfer. Bookkeepers or chartered accountants are not necessarily the most sought-after intermediaries, despite their proximity to small businesses, but they are the primary source of assistance during the transfer process. This role is facilitated by their ability to access complementary services that entrepreneurs may not necessarily use directly. A better understanding of the participants involved in the transfer process would enable better targeting of the needs met by a guarantee and improved understanding of how it influences the survival and performance of the business taken over.

Finally, this time non-economic question influences the transfer of a business, the possible financial arrangement necessary to complete it, and its future. A remark inspires it in the already-mentioned BPCE report, which alerts us to one point: while transfers have tended to decrease between 2013 and 2016, this is not the case for family transfers of companies with less than 100 employees. Maintaining economic assets within the family is at least as important a consideration as the return on the transaction. However, reducing financial obstacles may not be the only issue to unlock. The guarantee does not necessarily answer the commercial logic that governs the continuity and transfer of very small family businesses. Understanding the selling entrepreneur's motivations would make it possible to tailor the response to the buying entrepreneur.

Thus, while the study on the transfer guarantee clarifies some of the expected impacts from a financial tool, it also opens up avenues to explore other questions left open by targeting this aspect. As well as explaining the differences between the guaranteed transactions and others, these questions may also contribute to better identifying the characteristics of the companies transferred and understanding of their diversity.

²² Françoise Bastié, Sylvie Cieply and Pascal Cussy, Does mode of transfer matter for business performance? Transfers to employees versus transfers to outsiders, *Small Business Economics*, 2018, 50, pages 77-89. Available online: <https://link.springer.com/article/10.1007/s11187-017-9903-5>

²³ Martina Battisti and Amanda J. Williamson, The role of intermediaries in the small business transfer process, *Small Enterprise Research*, 2015, Volume 22, No. 1, Pages 32-48

Referee report of Mr. Julien Brault and Mr. Simone Signore, research officers at the Research and Market Analysis Division of the European Investment Fund

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This study aims at evaluating the economic impact of Bpifrance's guarantees covering business transfers, focusing on buy-outs. It uses propensity score matching coupled with a difference in differences (diff-in-diff) approach. It compares transferred companies supported by the guarantee to similar firms, transferred or not. It also proceeds to comparing supported firms to similar firms receiving a loan without Bpifrance's guarantee. The study of guarantee-supported business transfers is particularly important, as it allows to shed light on the role of public policy regarding resource reallocation in an aging demographic context. This subject is of crucial importance in the post-Covid context.

Sections 1/2: Presentation of the programmes and their rationale

About 1.6% of French firms are transferred to a different owner each year. However, this share jumps to 7% for the hospitality sector. About 70% of those transfers would be financed through a loan. The report covers business transfers covered by both the "creation" and "business transfers" programmes of Bpifrance. The total amount of loans guaranteed by these programmes represented EUR 2.6bn per year between 2012 and 2019. The "creation" programme covers entrepreneurs with less than 3 years of activity. About 10% of all French business creations are guaranteed by Bpifrance. The "business transfers" programme supports entrepreneurs with more than 3 years of activity. Bpifrance's loan guarantee concerns 22% of all French business transfers and can cover up to half of the loan. Such transfers hence play an important role regarding overall labour mobility in France. The studied transfers concern firms valued at around EUR 190,000.

In terms of beneficiaries, about half of the "business transfer" loans are used for private equity buyouts, and the other half for the purchase of shares. However, in terms of volume, share purchases amount to 81%. The report allows to draw a portrait of the typical transferred firm. 95% of concerned firms are very small. 30% are in Hospitality, 40% in Retail. The demographic profiles of former and new owners confirm that these transfers are indeed generational, from the old to the young. The authors rightfully underline the crucial importance of business transfers in order to maintain economic activity in rural areas.

Section 3: Methodology and data

The chosen methodology and data choices are grounded on a thorough literature review. The report relies on propensity score matching coupled with a diff-in-diff. In terms of data, the report relies on the use of Bpifrance's internal data coupled with the BODACC business transfers database. The use of three other databases, including a survey of entrepreneurs, allows the authors to use a really rich data trove.

The data collection exercise however suffers from some limits. The end of data collection on business transfers by INSEE in 2006 is not deeply explained. As underlined in the report, the outcomes for the previous owner of the firm are not well known. It would be interesting for an institution like Bpifrance to run a survey to answer part of this question. It would notably be interesting to know which territorial migration is made by the buyer-entrepreneur when he buys the firm.

Sections 4: Empirical analysis

In general, the empirical analysis is robust, and tests various possibilities. Nevertheless, it is partially unclear why the time window upon which the economic impact is estimated varies by outcome measure (e.g. T-2 to T+3 for turnover, employment, but T+1 to T+3 for cumulative net fixed investments, with T representing the treatment year). Section 4.3 does explain the general rationale behind this varied approach – i.e. a legitimate concern for potential endogeneity, given the typically pre-acquisition behavior of target firms. However, it fails to explain why this aspect could not be tackled within the matching design (e.g. by including the growth of the outcome

variable between T-2 and T-1 in the matching model). Moreover, the use of the diff-in-diff approach would suggest testing for the common trend assumption, which in this report is carried out by means of a placebo test solely during the T-3 to T-2, as opposed to over the entire treatment period. As a further robustness check, the author might want to consider implementing the generalized diff-in-diff estimator developed by Autor (2003)²⁴.

The report shows that targeted buyers are indeed more finance-constrained, younger, with less diplomas, and more likely to be unemployed. Sold firms appear smaller. Guaranteed buyers have more experience in the concerned sectors than non-guaranteed ones. In terms of sectors and financial structures, supported firms are quite similar to other firms receiving non-guaranteed “transmission” loans. All these news are overall good signs for the studied programmes.

As pointed, a major issue would be improved access to individual data, especially about the seller. This would allow to analyse what the sellers do with the proceeds of the sales. Data on the origins of the buyer in terms of geography and sector would also provide valuable information regarding sectoral reallocation. As justly underlined in the study, gathering such data could however prove difficult.

Results

Results from the propensity score matching are coherent with the relevant literature. Concerning the estimated economic impact (assessed via diff-in-diff), compared to similar firms, including non-sold ones, results show that in 3 years, the programme led, per firm, to EUR 8000-9000 of additional investment, EUR 22,000-32,000 of additional turnover, and EUR 4,000-5,000 of additional gross operating profit. It would be useful, however, to systematically present the tables of impact results also as a percentage (i.e. via log-linear estimation): this would allow for a more comparable assessment of the economic impact.

Bpifrance’s guarantees on business transfers also led to an increase in labour productivity and survival. The increase in labour productivity is particularly high, and welcome news for the studied programmes. However, when comparing only with comparable transmitted firms, the impact on turnover, gross operating profit and survival disappears.

Decomposed results show that when the sold company comes from an owner nearing retirement, the magnitude of the observed impacts is greater. These are also good news for the impact of this programme. The results for bigger loans and older sellers are also good news for the “transmission” programme, as are results compared to transferred firms which did not receive a guarantee. Beneficiaries of guaranteed loans, initially more fragile, fare as good as beneficiaries of normal loans.

It would have been interesting to decompose the results per more various age layers, although this possibility might be limited by the sizes of the samples. Additionally, the explanation for an increase in investment of beneficiaries of guaranteed loans compared to non-guaranteed loans is unclear.

Overall, the results of the study are interesting and in line with the objectives of the programmes. The report allows to think about potential additional data gathering in the future, especially concerning the outcomes of the seller. One of the major lessons to be drawn from this study is that the positive impact on productivity of such supports to transmissions is good news in the context of Covid-induced sectoral reallocations as well as the wider aging context in developed economies.

Misc.

It would be useful to indicate the guarantee amounts deployed by comparable programmes in the world as listed in Appendix 1.1.

²⁴ See Cerulli et al (2019) for an implementation in Stata.

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Cerulli, Giovanni, and Marco Ventura. "Estimation of pre-and posttreatment average treatment effects with binary time-varying treatment using Stata." *The Stata Journal* 19.3 (2019): 551-565.

Referee report of Mr. Ahmed Tritah, Professor at University of Poitiers, Crief; Mines ParisTech, Cerna

December 2021

The study consists of an economic impact assessment of BPIfrance's guarantee schemes covering business transfers. In the absence of a controlled and natural experiment, the author uses control methods to assess this impact. In this case, the economic performance of companies transferred that are beneficiaries of the bank credit guarantee is compared with that of non-beneficiary companies. The distinction between a pre- and post-treatment group (i.e. transfer with a credit guarantee) and a comparable control group (not benefiting from the guarantee) makes it possible to employ a double-difference identification strategy (to control for competitive effects, and unobservable and time-invariant heterogeneity) coupled with a matching method to control for observable characteristics. The study shows that the guarantee is effectively used by banks for proposals from buyers with risky profiles. In this sense, the guarantee scheme reaches its target. The scheme also seems to ensure a substantial improvement in the economic performance of companies. For all the performance indicators selected, over a period of three years after the granting of the guarantee, the beneficiary companies post better results than the non-beneficiaries. Nevertheless, the study does not show any difference in performance when the beneficiary companies are compared with companies that are effectively transferred without a credit guarantee. Thus, the guarantee appears to have an effect mainly through facilitating the proposed transfer.

Overall, this is a high-quality impact assessment that tends to demonstrate (within the limits of the identification hypotheses) the beneficial effects of a scheme that offers a guarantee for loans that facilitate business takeovers. The results are clearly presented and rigorously commented on, whilst keeping a critical perspective on their scope and limits. The identification hypotheses underlying the use of the double-difference and matching method are clearly discussed, and the authors present the usual tests for assessing the credibility of the hypotheses (tests on pre-treatment trends). In addition, the robustness tests carried out reinforce the significance of the results and the scientific rigour of the assessment as a whole.

The remainder of this report is divided into three sections. First, we present comments and general remarks on the assessment question and the study's approach. We then discuss the appropriateness of the assessment methodology and comment on the results and their significance. We will conclude with proposals that could strengthen and expand the scope of the current study and directions for future development.

1. Background to the assessment and general remarks

The dynamism of an economy depends not only on company creation but also on the renewal of human capital, energy, proposals and ideas within companies. This renewal takes place through changes in the top management and ownership of the company. For very small businesses, this will very often occur following a takeover involving the sale and purchase of business assets (or to a lesser extent shares). Nevertheless, many proposed takeovers (potentially profitable and generating a social surplus) do not come to fruition once faced with the transaction costs, frictions and information asymmetries in the credit market. Therefore, a bank guarantee scheme, partially publicly supported (i.e. subsidised), would stimulate companies' development and prosperity by enabling better matches between buyers and sellers. This is particularly important in an economy with an ageing entrepreneurial

population, where the takeover may take the form of an intergenerational transfer. Enabling more young people with few assets or guarantees to develop entrepreneurial human capital is therefore a public policy issue with potentially significant repercussions on the local economic fabric that is the typical environment of VSEs. Studies assessing the impact of such schemes are rare. This study fills this gap and, in this regard, provides valuable facts and objective factors to assess the scheme's efficacy, from the points of view of both the target population and its impact on the companies' performance. The study also informs us about certain mechanisms through which the guarantee acts on companies' performance and could thus help to identify leverage effects and direct resources to improve the scheme's targeting.

To perform this assessment properly, a significant amount of work was done to merge data from multiple sources, with particular attention paid to the data quality and consistency (i.e. comparability). The study is based on an extensive review of the state of the art and has a definite pedagogical aspect: whether for the purpose and description of the scheme, the methodological aspects of the assessment procedure, or the critical commentary on the results. The difficulties of causal inference are clearly presented. In particular, the rigour with which the study describes the limitations of the results with regard to the methodology (i.e. the identification strategy adopted) and the available data is appreciated. Some robustness tests are also offered. This critical analysis is important. It allows us to envisage opportunities for development and invites cross-validation of the current results in future studies.

The study shows that the guarantee is effectively used by the banks for projects from buyers with risky profiles. In this sense, the guarantee scheme reaches its target. It is likely that a significant proportion of these proposals would not have received a loan without the scheme. Another interesting aspect also relates to the volume of loans: the use of the guarantee would allow access to relatively larger loans. Do we know if this is indeed the case? Do the beneficiary companies take out other loans over the three-year period covered by the study? This would help to refine the understanding of the mechanisms through which the guarantee operates and to consider the longer-term prospects of the proposals.

The scheme seems to ensure a substantial improvement in companies' economic performance. However, this seems to be explained mainly by enabling the transfer, i.e. the guarantee broadens the scope of the transferred enterprises. Could the study provide information on companies that were transferred but would not otherwise have been? This aspect could be given more prominence, with regard to both the point of view of the buyers and the characteristics of the businesses taken over. Do we know on average how much time elapsed between the completion of a business transfer and the seller's decision to sell? Interestingly, the study does not reveal the classic insurance phenomenon of anti-selection or moral hazard (linked to changes in risk-taking), in which case the loss experience of these companies should be higher. How can this result be explained?

2. Impact assessment methodology: interest, limitations and criticisms

Discussion on the nature of selection bias. The assessment faces a fundamental problem of causal inference: the position of beneficiary companies without the guarantee scheme is fundamentally unobservable. Moreover, the deployment of an identification strategy that would consist in identifying a control group is made difficult by the process that leads to the triggering of the guarantee. This process is the result of selective and sequential decisions by the various stakeholders (seller, buyer, banker): (1) having a takeover proposal, (2) completing it (concluding a takeover agreement: the process of matching with a buyer), and (3) financing this takeover with a loan for which the bank uses a guarantee. The characteristics of potential buyers and of the businesses being taken over may change at each of these stages. Moreover, the very existence of a guarantee can affect the takeover proposals at all these stages: new takeover and sale proposals emerge, it can increase the likelihood that these will be completed (that the agreement and the associated financing will be accepted) and, finally, ex-post performance. As the author highlights, it seems difficult to separate out the different stages through which the guarantee affects the businesses being taken over. Nevertheless, could these characteristics be described

qualitatively? This would enable the extent to which this complex process tends to underestimate or overestimate the impact of the guarantee on business performance to be objectively assessed.

Assessing the profiles of businesses that would not have been transferred without a guarantee seems difficult. The study describes the profiles of the proposals and buyers for which the banks use guarantees. As the guarantee is available to all, it is difficult to conclude what would have happened to these buyers if the guarantee had not been available. Nevertheless, the guarantee reaches its target in the sense that the banks use it on riskier profiles. Would it be possible to have objective risk indicators and to calculate a coverage rate according to the indicator? An objective analysis of the link between risk exposure and use of the guarantee could then be made and would give a better insight into the behaviour of companies regarding the risk associated with the loan.

The existence of the guarantee changes the population of transferred businesses. Some businesses transferred with the guarantee would have been transferred anyway; others would have disappeared (liquidation and closure). Here again it seems difficult to describe these businesses.

Despite these difficulties, some of which are highlighted by the study, the identification strategy used seems appropriate to the identification issue the assessment faces (always within the limits of the data used), given the programme specifics, which do not allow the natural exclusion of a group of companies from the benefit of the guarantee.

One factor in particular, noted by the study, that may reduce the impact of the guarantee is the lack of information on the follow-up of the funds from a takeover. The ages of the seller and buyer could nevertheless provide some indication of the likely destination of these funds. For example, is there an intergenerational transfer? Given that the buyers are younger than the sellers, could the age difference be significant? The guarantee affects the profiles of the buyers and sellers. Specifically, it is likely that the guarantee makes the buyer population younger. On the supply side, the bank uses the scheme more for this population. On the demand side, knowing that the banks will be able to cover their risk (without entirely transferring it to the buyer), more risky profiles (i.e. young people) will be buyers. Thus, as we can see, the age of the buyer may be a result of the guarantee; it appears to be a channel through which the guarantee influences the company's performance.

Presenting results with and without a control for age in the matching procedure is therefore recommended.

Identification strategy. Without a natural or randomised experiment, the author uses a matching control method combined with a double-difference approach. The closest matching algorithm is chosen. This algorithm (out of the set of most possible algorithms) has the least bias, at the risk of being less accurate. The matching does not present a common support issue, even if the common support (graph of the propensity score density before and after the matching) is not presented as is often the case. It would be interesting to test the sensitivity of the matching results to the exclusion of extreme values of the score, as these results are sometimes sensitive to the exclusion of very high (or very low) probabilities of being treated. Thresholds above 0.95 or below 0.05 are common.

I would also suggest that an exact match be done on certain group membership characteristics that are clearly exogenous (business sector, département or region).

To validate the double-difference method, it is important to ensure that there is no anticipation effect: did potential sellers and buyers know of the existence of the guarantee? How is the information communicated to the seller and the buyer? Could the seller have an interest in changing their choices regarding the company in anticipation of a takeover with a guaranteed loan?

Indicators. Some control variables, such as age for example, seem to me to be outcome variables. Age thus appears to be a channel through which the guarantee has an effect. By making the population of buyers younger, it has a specific influence on companies' performance. Thus, I am not sure it is necessary to control for the age of the buyer in the matching procedure because age is determined by the guarantee.

Beneficiary companies appear to be more productive. What does this result reflect? Is it true when controlling for the loan size? It is indeed possible that the guaranteed loans are for amounts that finance not only the takeover of the business assets but also productivity-enhancing investments. Are there any effects on wages? This would allow conclusions to be made on the quality of the workforce. Do we also observe signs of future labour turnover? In other words, does the guarantee allow the company to renew its human capital more broadly, to improve job quality (better paid and more permanent)? In the sectors most affected by the guarantee, which are characterised by high job turnover, these questions are important and also determine companies' performance.

To the extent that the guarantee also affects the amount of borrowing, the amount borrowed is not exogenous to the guarantee; it is therefore not obvious how to interpret the effects that would include this variable in the matching procedure.

Results. The results show a very high concentration in certain sectors. These sectors, although labour-intensive, contribute little to job creation (restaurant, accommodation). Can we assess an impact by sector, or at least force exact matching on the sectors in the matching procedure?

We note that the employment effects are positive for some cohorts and negative for others. Are these unobserved cohort effects? Or business cycles, which may be specific to certain regions or sectors? Can we control for these cycles?

The impact is greater for older sellers. Could this be explained by a better transfer of human capital between the seller and the buyer or by better quality business assets (measured by the sale price)? In which sector or company profile is the age effect particularly strong?

The study shows that the differences in performance favouring the companies benefiting from the guarantee disappear when the control group is restricted to companies actually transferred. This result could be due to the selective behaviour of the banks that use the guarantee for structurally riskier loans. Thus, a potentially positive effect of the guarantee may be cancelled out by the selection process of banks that use the loan for riskier proposals. Can the banks' behaviour explain the null effect observed when the control group is restricted to transferred companies? If so, the estimated effect underestimates the actual effect.

How are consecutive years taken into account (guarantee granted in year T and takeover completed in T+1) to define the indicators and the year of treatment? Can this generate measurement errors?

External validity. Most of the assessment focuses on treated companies. It may be interesting to assess the impact on non-treated companies (or certain groups among the non-treated). If the population of beneficiaries were to change, this result would indicate the extent to which treated companies have specific characteristics that explain a particular impact for them. The study shows that the effect is different depending on the age of the seller. A risk indicator would make it possible to assess different impacts based on the riskiness of buyers' profiles, for example, buyers with a risk index higher than the median.

3. Some additional suggestions and development opportunities

Transferring the business would imply a change in the preferences of the entrepreneur who could be less risk-averse. It would be interesting to assess to what extent the beneficial effects of the guarantee are due to a younger, and thus greater-risk-taking, buyer, in return rewarded by better performance (perhaps at the risk of a greater loss rate). In that regard, assessing the impact with and without a control for age may be useful.

What is the objective of the sale? Is it the consequence of difficulties faced by the seller or is it part of an expected career plan? The reason for the sale could of course shed light on the mechanisms and explain the activation or non-activation of the guarantee and the differences in performance between the companies. In this respect, distinguishing between takeovers of companies that performed well (before the guarantee was granted) and those that performed less well could be informative. In the same vein, distinguishing the effects according to

whether an enterprise operates in expanding sectors (more business creation) or contracting sectors (more business destruction) could also be informative.

Is there any information on the proximity of the seller and the buyer: in particular, was the seller a partner in the business, an employee, a supplier? How does this relate to the activation of the guarantee?

Transferring a business implies a change in both the owner and the manager. Do we sometimes see changes of owner without a change of manager? In principle, this should be possible, but for the population of very small businesses, which are the main ones concerned, it seems to me that it is not.

The guarantee should increase the stock of sterilised debt. A question then is to what extent this additional debt is profitable for the company (and not only the company as the guarantee is financed from public funds). Following the examples of previous studies (Gazaniol and Le, 2019), could the study help assess the return on this debt? For example, provide an estimate of the return on 1 euro of public funds underwriting the guarantee. In the absence of a precise valuation of this return, a reduced estimate (based on conservative assumptions, due to the absence of the return on the funds reinjected by the seller) could provide information on the economic performance of the scheme.

Several types of aid exist: is there any overlap, complementarity or substitutability between the various schemes?

Does the guarantee help rebalance regional supply and demand for takeovers? We may hypothesise that in regions where supply exceeds demand, the guarantee will have a greater effect, and be more widely used. Can local disparities be exploited depending on whether there is a surplus or a scarcity of buyers?

Among the counterfactual companies, the author takes all companies, and also proposes an assessment restricted to companies that have been taken over. To account for the selection bias arising from the fact that the guarantee affects the (unobservable) characteristics of the takeovers, one possible approach would have been to adopt a Heckman-style selection bias correction method combined with matching. In the first step, we would estimate the probability of being taken over (for all the companies). Then we would assess (by matching) the effect of the guarantee only on the companies that are taken over but that would otherwise have the same probability of being taken over as captured by the Mills ratio, which would appear as a standard matching variable. The difficulty of the method here is to find an instrumental variable for the probability of being taken over. The instrumental variable must affect the probability of being taken over without affecting the company's performance.

Conclusion

Banks play a critical role in financing business transfers. These transfers often have an intergenerational dimension. This role is impeded by transaction costs, frictions and information asymmetries. Consequently, some transfers profitable for both sellers and buyers are not completed, which may generate a dead loss for the economy. The study, to the extent of the available data, uses a relevant identification strategy that is rigorously applied. The study clearly describes the inherent limitations of the data and the deployment of the scheme, which does not lend itself to assessment using a natural experiment. Nonetheless, the results provide evidence that the scheme could credibly be expected to make a significant improvement in the performance of companies, primarily by facilitating takeovers. Future studies should seek to confirm these results and study in greater detail the behavioural mechanisms (from the buyer's perspective) responsible for the estimated impacts. Lastly, it seems important to identify the guarantee's complementary resources and leverage effects that could make initiatives targeted to the participants concerned (buyer, seller, banker) possible.