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Confiance de l'entrepreneur, décisions financières et performances de l'entreprise

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Sommaire

Introduction Generale

Le phénomène de l'entrepreneuriat concerne la découverte et l'exploitation d'opportunités commerciales (Shane et Venkataraman, 2000). On attribue aux entrepreneurs la création de nouveaux produits ou services, la découverte de nouveaux marchés et la mise en œuvre du processus de « destruction créatrice » (Schumpeter, 1934). Cependant, les entrepreneurs sont également connus pour leurs ressources limitées qui pourraient limiter le gain économique potentiel provenant de leurs entreprises. Comprendre les formes pour surmonter les contraintes de capital pour les entreprises entrepreneuriales est ainsi devenu l'un des principaux objectifs des chercheurs (Udell, 2015).

Les petites et moyennes entreprises (PME) rencontrent des difficultés à lever des fonds. En d'autres termes, non seulement le développement des PME est contraint par le financement interne (Carpenter et Petersen, 2002), mais les petites entreprises rencontrent également des difficultés à attirer des financements externes (Cosh et al., 2009 ; Fazzari et al., 1987). En effet, les asymétries d'information entre les entrepreneurs et les investisseurs extérieurs peuvent imposer des barrières à l'échange de capitaux, car les investisseurs craignent le comportement opportuniste des entrepreneurs ou la sélection adverse. Alors que les problèmes d'information ex-ante (pré-prêt) peuvent conduire à une sélection adverse (Stiglitz et Weiss, 1981), les problèmes d'information ex-post peuvent conduire à un aléa moral et à un transfert de risque car l'entrepreneur peut ne pas maintenir le niveau d'effort optimal et rembourser les dettes (Jensen et Meckling, 1976 ; Watson, 1984 ; Williamson, 1987). Dans ce contexte, les entrepreneurs peuvent être confrontés à des contraintes financières, ce qui entraîne un écart de financement entre le capital dont ils ont besoin et ce qu'ils reçoivent.

Une telle inadéquation entre l'offre et la demande de capital, identifiée pour la première fois au Royaume-Uni par le comité MacMillan en 1931, puis redécouverte dans des enquêtes postérieures (par exemple, Bolton Committee Report, 1971), est le résultat de défaillances permanentes du marché (Cressy, 2002). Bien que de nombreux progrès aient été réalisés au fil des ans pour combler les besoins en capital des PME (Fraser et al., 2015), les problèmes liés aux causes du déficit de financement sont loin d'être résolus. La principale difficulté consiste à démêler si l'écart est causé par une contraction de l'offre de capital ou une baisse de la demande du marché.

Une grande partie des discussions politiques se sont concentrées sur la résolution des premiers, tels que le manque de concurrence dans la fourniture de services bancaires aux PME (Cruickshank, 2000), ou les lacunes dans la fourniture de capital de croissance (Rowlands, 2009). Cependant, certains chercheurs commencent à étudier le côté demande du marché des capitaux, en prenant en considération les caractéristiques des entrepreneurs lorsqu'ils étudient la structure financière des PME (Shepherd et al., 2015). Par exemple, les entrepreneurs éligibles pour demander un crédit ont simplement décidé de ne pas le demander (Kon et Storey, 2003 ; Neville et al., 2018). Dans d'autres cas, les entrepreneurs refusent de demander un financement externe parce qu'ils ne sont pas disposés à partager le contrôle de leurs entreprises (Cressy, 1995 ; Romano et al., 2001).

En général, les développements théoriques qui expliquent les modèles de financement et de croissance des petites entreprises sur la base des asymétries d'information aident à expliquer la variation observée sur les décisions de financement. Le paradigme du cycle de vie de la croissance financière proposé par Berger et Udell (1998) indique que les besoins financiers des entreprises changent tout au long de leur étape commerciale. Au fur et à mesure que l'entreprise mûrit et grandit, certains problèmes causés par l'asymétrie de l'information se dissipent. Parallèlement, la théorie de l'ordre hiérarchique affirme que les entrepreneurs s'appuient d'abord sur des financements internes puis, si nécessaire, sur des financements externes (Myers et Majluf, 1984). La théorie de l'agence, en revanche, montre des conflits d'intérêts entre l'entrepreneur (l'agent) et

les investisseurs (le mandant) qui peuvent être atténués par des garanties ou un alignement des intérêts (Jensen et Meckling, 1976).

Ces explications économiques sont cependant souvent incomplètes pour analyser pleinement les décisions de financement à risque (Shane et Cable, 2002). L'abondante littérature empirique vient étayer ces théories (Chittenden et al., 1996 ; Cosh et al., 2009 ; Giudici et Paleari, 2000), mais n'explique pas complètement le comportement de financement des PME (Fraser, 2019). Une explication est que ces approches théoriques ne tiennent pas compte du fait que les entrepreneurs sont très hétérogènes dans leurs objectifs, leur ambition de croissance, voire leur perception du risque/opportunité (Cressy, 1995 ; Romano et al., 2001).

Des recherches récentes explorant la cognition entrepreneuriale montrent en effet que les décisions financières sont influencées par des constructions cognitives. Dans de nombreux cas, les contraintes financières découlent des décisions des entrepreneurs, qui perçoivent mal leurs chances ou leur besoin de lever des fonds (Fraser et al., 2015). Si la finance comportementale entrepreneuriale présente déjà de nombreux résultats prometteurs (Grégoire et al., 2011 ; Kerr et al., 2018 ; Newman et al., 2019 ; Zhang et Cueto, 2017), la récente et les difficultés méthodologiques pour faire émerger les construits cognitifs de l'entrepreneur montrent que beaucoup plus d'investigations sont nécessaires dans ce domaine (Fraser et al., 2015 ; Newman et al., 2019 ; Shepherd et al., 2015). Par conséquent, l'analyse des décisions de financement des entrepreneurs peut améliorer notre compréhension générale des contraintes financières de l'entreprise et comment les réduire.

Organisation de la thèse

Cette thèse explore empiriquement l'interaction entre les facteurs cognitifs liés à la confiance de l'entrepreneur, aux décisions financières et à la performance de l'entreprise. L'objectif de cette étude est, en d'autres termes, d'analyser les effets de certaines variables cognitives spécifiques, telles que l'excès de confiance, l'optimisme dispositionnel, l'auto-efficacité entrepreneuriale, l'erreur de planification, et de contribuer à comprendre comment elles façonnent la structure du capital de l'entreprise et les décisions de la collecte de fonds entrepreneuriale. Comme le montre cette thèse, les facteurs cognitifs liés à la confiance de l'entrepreneur constituent la plupart des études empiriques dans le domaine et révèlent des impacts importants sur les résultats de l'entreprise. Ainsi, la thèse, séparée en trois chapitres, s'insère dans le contexte du développement et de la croissance des petites et moyennes entreprises (PME) ainsi que dans la littérature en finance comportementale qui explore les moyens d'alléger les contraintes financières très caractéristiques des PME.

Le chapitre 1 est une revue systématique de la littérature qui examine quels sont les principaux facteurs cognitifs liés à la confiance entrepreneuriale et comment elle affecte les décisions et les résultats de l'entreprise. Alors qu'une grande partie de la recherche sur la cognition entrepreneuriale s'est concentrée sur l'entrée en affaires, des études récentes soulignent de nombreux effets observés des facteurs cognitifs sur les résultats de l'entreprise. Comprendre quels sont les principaux construits cognitifs et leurs effets sur la recherche entrepreneuriale peut améliorer les performances des entreprises en termes de croissance, d'innovation et de rentabilité. Ainsi, des recherches antérieures sur les principaux articles de revue de littérature montrent un ensemble spécifique de facteurs cognitifs qui n'ont jamais été analysés conjointement. Il s'agit de facteurs cognitifs liés à la confiance de l'entrepreneur qui ont un grand potentiel pour affecter les perceptions et les jugements de l'entrepreneur. Nous avons ensuite étudié toutes les recherches

empiriques explorant les effets de l'excès de confiance, de l'excès d'optimisme, de l'erreur de planification, de l'auto-efficacité entrepreneuriale, de l'optimisme dispositionnel et de l'affect positif dispositionnel. Ces facteurs cognitifs affectent à la fois les décisions entrepreneuriales et la performance de l'entreprise.

La méthode de revue systématique de la littérature est l'échantillonnage critérié (Patton, 1990), dans la lignée des précédentes revues de la littérature sur l'entrepreneuriat (Grégoire et al., 2011 ; Shepherd et al., 2015). Nous avons développé deux listes de mots-clés : une relative aux entrepreneurs et une relative à la confiance. Nous avons ensuite recherché des articles qui utilisaient une combinaison d'au moins un mot-clé dans nos deux listes dans leur titre, résumé ou mots-clés. Nous avons effectué des recherches dans les bases de données académiques suivantes : JSTOR, EBSCO, Wiley, Science Direct et Google Scholar. Cette première étape a identifié 232 articles. En analysant tous les articles, nous avons sélectionné ceux qui étaient empiriques, liés aux résultats de l'entreprise et publiés dans une revue à comité de lecture. La liste finale comprenait 34 articles.

La revue de littérature distingue deux niveaux d'analyse : les décisions de l'entreprise et la performance de l'entreprise. Le niveau de décision d'une entreprise comprend des variables organisationnelles qui définissent les décisions financières et stratégiques d'une entreprise. Dans ce cas, nous avons identifié 12 articles analysant uniquement les effets d'un (ou plusieurs) facteurs cognitifs liés à la confiance sur les décisions de l'entreprise. La plupart d'entre eux analysent les décisions d'investissement ou les décisions de structure du capital. À une échelle mineure, les articles sur les décisions stratégiques se concentrent principalement sur l'orientation entrepreneuriale (EO). Au niveau de la performance des entreprises, le sujet le plus exploré est la croissance (9 articles), suivi de l'innovation (7 articles). Certains articles explorent la mesure subjective de la performance qui est la forme la plus simple et la plus robuste pour évaluer les informations de l'entreprise par le biais d'enquêtes. Peu d'articles explorent la survie ou l'efficacité technique de l'entreprise (Elhem et al., 2015 ; Gudmundsson et Lechner, 2013 ; Invernizzi et al., 2017).

Après cette identification, nous avons intégré et résumé les résultats de cette littérature très fragmentée. Ce faisant, nous exposons l'état de l'art de la littérature et proposons un futur agenda de recherche. Certains des principaux résultats incluent la mise en évidence des principaux facteurs cognitifs analysés dans la littérature tandis que de nombreux autres nécessitent encore des investigations plus approfondies. Par ailleurs, les résultats montrent une absence d'effets croisés – ou d'analyses de modération – entre plusieurs formes de facteurs cognitifs. Une variation possible des effets des facteurs cognitifs sur le temps devrait également être étudiée plus avant. Enfin, nos résultats montrent que les décisions financières jouent un rôle central dans la chaîne de causalité entre la confiance des entrepreneurs et la performance de l'entreprise.

Les contributions de notre article sont triples. La principale contribution est de faciliter la classification de cette littérature et de permettre une compréhension systématique de l'influence de la confiance des entrepreneurs sur la performance de l'entreprise en proposant un modèle conceptuel. Ainsi, nous participons au regain d'intérêt pour les fondements comportementaux des organisations et de la prise de décision en entrepreneuriat (Phan et Wright, 2018). Notre classification met également en évidence que ces différentes formes de confiance ont des impacts différents sur la performance des entreprises. Deuxièmement, nous soulignons plusieurs lacunes dans la littérature et proposons quelques suggestions pour de futures recherches. En particulier, nous identifions le besoin de développer la recherche en finance comportementale entrepreneuriale. Enfin, notre examen a également des implications politiques et managériales. Nous fournissons de nouvelles informations sur les déterminants de la performance entrepreneuriale des entreprises, en particulier la croissance des entreprises.

Le chapitre 2 utilise les principaux résultats de la revue systématique de la littérature pour étudier empiriquement certaines des lacunes de la littérature sur la finance entrepreneuriale en utilisant l'auto-efficacité entrepreneuriale (ESE) comme objet d'analyse. L'ESE fait référence à la croyance d'un individu en sa capacité à effectuer des tâches et des rôles visant à obtenir des résultats entrepreneuriaux (Chen et al., 1998). Bien que de nombreux éléments de preuve

indiquent que l'ESE est un bon prédicteur de la performance de l'entreprise, peu d'exemples dans la littérature montrent comment l'ESE affecte la structure financière de l'entreprise, ce qui pourrait conduire à cette performance/croissance plus élevée. Si les entreprises contrôlées par des entrepreneurs riches en ESE se développent davantage, les questions concernant les contraintes financières qui limitent normalement la croissance des PME restent sans réponse. Ainsi, ce chapitre examine deux choses : (1) si les entrepreneurs à haut niveau d'ESE sont plus capables de lever des financements externes pour leurs entreprises ; (2) auprès de quelles sources ils mobilisent des financements extérieurs.

En tant que facteur cognitif lié à la confiance de l'entrepreneur, l'ESE affecte les décisions financières de l'entrepreneur qui peuvent être directement liées aux résultats de l'entreprise. En effet, certaines tâches entrepreneuriales importantes liées à l'auto-efficacité entrepreneuriale incluent l'engagement dans la relation avec les investisseurs (DeNoble et al., 1999). De plus, l'ESE est liée aux actions et comportements entrepreneuriaux qui peuvent expliquer certains des résultats observés dans les résultats de l'entreprise (Newman et al., 2019). Par exemple, les entrepreneurs riches en ESE sont généralement plus orientés vers la croissance dans leurs intentions entrepreneuriales (Douglas, 2013), ce qui explique en partie comment l'ESE améliore la croissance de l'entreprise. Ainsi, dans cette étude, nous utilisons l'asymétrie de l'information, la théorie organisationnelle et la littérature ESE pertinente pour formuler des hypothèses sur la manière dont l'ESE est liée aux décisions financières.

Le développement conceptuel utilise la théorie traditionnelle de l'ordre hiérarchique et des interprétations récentes de la théorie de l'ordre hiérarchique en entrepreneuriat pour créer les hypothèses impliquant les capitaux propres et la dette dans les décisions de financement de l'entreprise. Alors que la théorie traditionnelle de l'ordre hiérarchique affirme une préférence pour la dette par rapport aux capitaux propres (Myers et Majluf, 1984), certains chercheurs défendent une théorie de l'ordre hiérarchique inversé dans certaines circonstances - en particulier dans le contexte de l'entrepreneuriat (Minola et al., 2013 ; Paul et al., 2007 ; Sau, 2007). Ainsi, nous développons deux hypothèses liées aux décisions financières.

Méthodologiquement, des enquêtes s'adressent aux entrepreneurs français pour accéder empiriquement à leur niveau d'ESE ainsi qu'aux informations financières de leurs entreprises. L'échantillon est constitué de 114 réponses (environ 1% des enquêtes livrées). Nous testons les hypothèses en utilisant les modèles Tobit et Probit pour évaluer les décisions financières des entrepreneurs. Enfin, nous utilisons des régressions OLS pour les tests de robustesse des modèles linéaires.

Les résultats montrent une relation significative et positive entre l'ESE et la dette à long terme, et entre l'ESE et les fonds propres extérieurs. Les mêmes résultats sont observés dans les modèles de contrôle de robustesse. En outre, les entrepreneurs à haut niveau d'ESE sont plus susceptibles de lever des fonds auprès de sociétés de capital-risque (VC) et de Business Angels (BA) que les entrepreneurs à faible niveau d'ESE. En revanche, aucun résultat significatif n'a été trouvé chez les entrepreneurs élevés en ESE ayant de plus grandes chances de lever des fonds auprès des banques.

Cette étude apporte deux contributions principales. Premièrement, la recherche présente des implications pratiques pour l'éducation entrepreneuriale. Différent des autres facteurs cognitifs inhérents, l'ESE peut être développé chez les individus par l'apprentissage et l'éducation (Newman et al., 2019). Ainsi, développer l'ESE chez les entrepreneurs peut les aider à mettre en place des ressources financières pour leurs entreprises. Deuxièmement, les décideurs politiques intéressés à fournir des ressources aux start-ups et aux nouvelles entreprises peuvent le faire en concentrant leur attention sur des mesures susceptibles d'accroître l'ESE des entrepreneurs.

Le chapitre 3 apporte une nouvelle contribution empirique à la littérature en testant trois facteurs cognitifs différents liés aux décisions financières de l'entrepreneur. Dans cette étude, nous testons les effets de l'auto-efficacité entrepreneuriale (ESE), de l'optimisme dispositionnel et de l'excès de confiance (mauvaise étalonnage) sur le découragement de l'emprunt. En d'autres

termes, cette étude analyse si ces facteurs cognitifs liés à la confiance peuvent augmenter, ou diminuer, les chances de ressentir un découragement à l'emprunt.

Le découragement d'emprunt se produit lorsque les entrepreneurs pensent que la demande de crédits bancaires ne vaut pas les frais de demande car ils perçoivent de faibles chances d'obtenir les crédits (Fraser, 2019). Les estimations suggèrent qu'au moins 4% des PME sont sujettes au découragement, la plupart d'entre elles éligibles pour recevoir des crédits (Fraser, 2014). Dans ce scénario, il est crucial de comprendre quelles caractéristiques de l'entrepreneur pourraient expliquer cette décision de ne pas demander de crédits.

Nous basons le développement conceptuel de l'étude sur le modèle théorique de Fraser (2014). Alors que les développements théoriques antérieurs du découragement utilisent des fondements rationnels pour le comportement de l'agent d'attraction sur le découragement, le modèle de Fraser (2014) permet à des facteurs irrationnels d'expliquer le découragement comme une extension des modèles précédents. Par conséquent, le découragement n'est pas toujours une attitude rationnelle face aux imperfections du marché, mais aussi le résultat des perceptions erronées de l'entrepreneur. Dans ce cas, les facteurs cognitifs qui affectent la perception de l'individu - tels que l'excès de confiance, l'optimisme et l'ESE - peuvent jouer un rôle essentiel dans la littérature sur le découragement.

Ainsi, l'étude propose trois hypothèses liées au découragement à l'emprunt et aux facteurs cognitifs. Chaque hypothèse se rapporte à un facteur cognitif analysé dans cette recherche. La première hypothèse, concernant le mauvais étalonnage sous forme d'excès de confiance, énonce deux hypothèses opposées H1a et H1b. En effet, un mauvais calibrage provoque une surestimation de la précision de ses connaissances (Moore et Healy, 2008). Ainsi, les entrepreneurs qui souffrent d'un mauvais calibrage peuvent soit surestimer leur perception d'être rejeté (approuvé) par la banque, augmentant (diminuant) le découragement. Dans les deux cas, nous avons deux possibilités tirées d'un mauvais étalonnage et deux hypothèses.

La deuxième hypothèse concerne l'optimisme dispositionnel. Ce trait de personnalité fait que les individus ont des attentes généralisées associées à des résultats positifs (Scheier et al., 1994). Conceptuellement, les individus optimistes surpondèrent les probabilités associées aux résultats positifs et sous-pondèrent celles associées aux résultats négatifs. Par conséquent, les entrepreneurs optimistes devraient surestimer leurs chances d'obtenir l'approbation des crédits. Dans ce cas, l'optimisme dispositionnel diminue la probabilité de se sentir découragé.

La troisième et dernière hypothèse fait référence à l'auto-efficacité entrepreneuriale (ESE). Les entrepreneurs à haut niveau d'ESE sont ceux qui entretiennent de bonnes relations avec les investisseurs extérieurs (DeNoble et al., 1999). Par ailleurs, ESE incite les entrepreneurs à s'engager dans des actions qui devraient améliorer leurs chances d'obtenir des fonds. Ainsi, nous attendons deux résultats de l'ESE : premièrement, les entrepreneurs riches en ESE ont de meilleures chances d'obtenir des crédits et, deuxièmement, les entrepreneurs riches en ESE ont moins d'asymétrie d'information avec les investisseurs potentiels. Par conséquent, les entrepreneurs riches en ESE se sentiront moins découragés car ils perçoivent leurs chances plus élevées d'obtenir les crédits de la banque.

Nous testons ces hypothèses auprès d'un échantillon d'entrepreneurs français ayant répondu à notre enquête sur le découragement. Au total, 158 entrepreneurs ont répondu à notre sondage. Nous utilisons un modèle Probit pour analyser la relation entre les 3 facteurs cognitifs en utilisant le découragement comme variable dépendante. Pour mesurer le découragement, nous utilisons la même mesure que Neville et al. (2018). Nous suivons Fischhoff et al. (1977) pour provoquer un mauvais étalonnage, le Life Orientation Test-Revised (LOT-R) développé par Scheier et al. (1994) et la mesure à 21 items de DeNoble et al. (1999) pour l'ESE. Le modèle contrôle le sexe, l'âge, le type d'entrepreneur, le statut juridique, l'implication de la famille, la taille de l'entreprise, l'âge de l'entreprise, le secteur, le lieu et le nombre de rejets antérieurs.

Les résultats montrent que le mauvais étalonnage est significatif et positivement lié au découragement, soutenant H1a. Dans ce cas, les entrepreneurs mal calibrés sont plus susceptibles de se sentir découragés. Les résultats montrent également que l'optimisme dispositionnel est

significatif et négativement lié au découragement, soutenant H2. Cela suggère que les entrepreneurs optimistes sont moins susceptibles de se sentir découragés, comme prévu. Étonnamment, l'ESE n'est pas significativement liée au découragement.

Deux contributions sont tirées de cette étude. Tout d'abord, cette étude répond aux appels récents à enquêter sur les facteurs cognitifs qui expliquent potentiellement les décisions financières de l'entrepreneur (Fraser et al., 2015). Deuxièmement, les preuves obtenues dans cette étude devraient guider les recherches futures sur l'accès des entreprises au crédit. Nous fournissons des informations substantielles qui peuvent contribuer aux efforts en cours pour développer des modèles théoriques qui associent des variables au niveau individuel (par exemple, excès de confiance, optimisme, ESE) avec des variables au niveau de l'entreprise (par exemple, structure financière, performance de l'entreprise). Ainsi, nous proposons un futur agenda basé sur les principaux résultats de cette étude et discutons des limites de notre approche.

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Chapter 1- Entrepreneur confidence and firm performance: A literature review[1]

This paper presents a systematic review of the empirical literature that explores how entrepreneur confidence influences the performance of firms. Specifically, we review the growing literature that empirically assesses the influence of overconfidence, optimism, entrepreneurial self-efficacy, and planning fallacy on firms' decisions and/or performance. We adopt a systematic approach based on criterion samples to identify an initial set of relevant articles. We critically discuss the results of this literature and provide some suggestions for future research. Overall, the results show that cognitive factors related to confidence change an entrepreneur's perception, affecting both the entrepreneur's decisions and the firm's performance. Doing so we point to the fact that entrepreneurial confidence is a factor explaining the performance heterogeneity of entrepreneurial ventures. Thus, our research contributes to the analysis of the micro foundation of entrepreneurial performance.

Keywords: entrepreneur; financial decision; performance; overconfidence; dispositional optimism; entrepreneurial self-efficacy

JEL codes: G31, G32, G41, M13

[1] Cowritten with Anaïs Hamelin and Marie Pfiffelmann.

1 Introduction

Small businesses play a central role in the world's economies they represent 99% of EU firms and 95% of OECD firms and account for 60% of employment and more than 50% of value-added in these economic zones[2]. Second, small businesses are a driving force of economic performance, particularly in terms of growth, employment, and innovation (Baumol, 2002; Forsman, 2011; McKeever et al., 2014). However, small businesses present several weaknesses (Aldrich and Auster, 1986), suffering from liabilities of smallness and newness (Stinchcombe, 1965). Given these shortcomings, numerous small businesses face major difficulties in their growth when it is not a threat to their survival (Aldrich and Auster, 1986; Penrose, 1959). Thus, it is essential to identify the main barriers to or drivers of small business growth. Access to finance was first suggested as the main barrier to small business growth (Beck and Demirguc-Kunt, 2006; Berger and Udell, 1998; Coluzzi et al., 2015). However, recent works have highlighted the existence of two contrasting small business growth behaviors (Hamelin, 2013; Hurst and Pugsley, 2011): while the growth of some small businesses is constrained by their reduced financing capacity, other small businesses can finance their growth but do not exploit it. Thus, small businesses show high differences in growth patterns, even for businesses that have similar characteristics (size, age, sector, access to financing, environmental conditions, industry, etc.).

This observation raises the question of what characteristics of individual owners may also explain the heterogeneity of small business outcomes? Among the different levels of analysis in entrepreneurship research (Davidsson and Wiklund, 2007), individual determinants and, more specifically, the drivers of entrepreneurial decision-making, have drawn increasing attention in recent years. The literature exploring the role of cognitive factors[3] in the entrepreneurial decision-making process has received particular interest (Shepherd et al., 2015)[4]. This literature suggests

[2] Source: Financing SMEs and Entrepreneurs OCDE scoreboard 2020.

[3] By cognitive factors we consider all elements and mental processes related to knowledge such as perception, memorization, reasoning, preferences.

[4] There is also an important literature that deals with sociodemographic individual characteristics, such as gender, age, education, culture, network, work background, etc. (Estrin et al., 2013; Giacomin et al.,

that small businesses' decisions are highly dependent upon entrepreneurs' cognitive factors during the decision-making process (Gibcus et al., 2009). Our article contributes to this literature by synthesizing the empirical literature exploring the influence of entrepreneur confidence in firm performance. Consequentially, these decisions directly affect entrepreneurial outcomes, helping to explain the variance in the firm's performance such as growth, success, or innovativeness (Douglas, 2013; Fatma et al., 2021; González-Cruz and Devece, 2018).

This paper specifically focuses on one category of cognitive factors — that are related to individual confidence. We take a broad approach to confidence and include in this generic category the concepts of overconfidence, optimism, self-efficacy, dispositional positive affect, and planning fallacy. We choose to focus on confidence for several reasons. First, the literature on entrepreneurial confidence shows that confidence is an important driver of entrepreneurial behavior and performance. For example, overconfidence is the most studied psychological determinant of entrepreneurial entry (Astebro et al., 2014; Koellinger et al., 2007; Robinson and Marino, 2015), followed by entrepreneurial self-efficacy (Bachmann et al., 2020). Second, confidence can manifest itself in different forms and scholars sometimes use them interchangeably as if they were synonyms when in fact they are not. For example, one of the most cited articles in the entrepreneurial entry literature is the empirical study ran by Cooper et al. (1988) of the estimation of entrepreneurs' chances of success. Some authors refer to this article by mobilizing the concept of entrepreneurial overconfidence (Busenitz and Barney, 1997; Cassar and Friedman, 2009; Koellinger et al., 2007) while others refer to it by mobilizing the concept of optimism (Cooper et al., 1988; Moskowitz and Vissing-Jørgensen, 2002). In this study, we propose the first review that jointly analyses the different forms of confidence that go from cognitive bias, to affect or personality traits, in entrepreneurship. This allows exploring whether all forms of confidence have the same influence on the firm performance or whether it is necessary to distinguish between them. Third, there is already substantial literature focusing on entrepreneur confidence, but it mainly focuses on the influence of confidence on entry decisions

2016; Micozzi and Lucarelli, 2016), but it is out of the scope of this paper.

(Hamelin and Pfiffelmann, 2015); that is, it explores the differences between entrepreneurs and non-entrepreneurs. Therefore, this literature assumes the existence of a "homo-entreprenaurus" which is distinct from other economic agents, such as managers (Busenitz and Barney, 1997). However, recent evidence suggests that entrepreneurs are highly heterogeneous in terms of cognitive factors (Baron, 2004, 2006; Mitchell et al., 2002). Our paper attempts to fill this gap by proposing a systematic literature review of the emerging literature that empirically assesses how entrepreneurial confidence affects firm outcomes. Thus, our research contributes to the analysis of the micro foundation of entrepreneurial performance.

Our literature review complements the landscape of literature reviews on entrepreneurial cognition by focusing specifically on how the entrepreneur's confidence influences firm performance. Indeed, previous reviews of entrepreneur confidence focus on entrepreneurial entry decisions, exploring the drivers of the differences between entrepreneurs and non-entrepreneurs (Astebro et al., 2014; Bernoster et al., 2018; Walter and Heinrichs, 2015). Other types of reviews investigate the influence of various cognitive factors on the entrepreneurial decision-making process but do not specifically focus on entrepreneur confidence (Grégoire et al., 2011; Kerr et al., 2018; Omorede et al., 2015; Salmony and Kanbach, 2021; Shepherd et al., 2015; Thomas, 2018; Zhang and Cueto, 2017). Our contribution to this literature is that we are the first, to our knowledge, to provide a systematic review of the empirical literature that explores how entrepreneur confidence influences firm performance. In doing so, we contribute to organizing this emerging literature, thus providing a point of departure for future research.

We first adopt a systematic approach based on criterion samples to identify an initial set of 232 relevant articles. We refine this initial set to extract our final list of 34 articles that empirically explore the influence of entrepreneur confidence on firm decisions or performance. Furthermore, we critically analyze each article and then synthesize the corpus of articles. We then discuss the results of this literature according to the principal outcomes in terms of firm performance, providing a systematic review of the results of this emerging literature. We conclude by identifying future research possibilities that stem from our analysis.

The contributions of our paper are threefold. The main contribution is to facilitate the classification of this literature and allow for a systematic understanding of the influence of entrepreneur confidence on firm performance by proposing a conceptual model. Our classification highlights those different forms of confidence have different impacts on firm performance. Thus, we participate in the renewed interest in the behavioral foundations of organizations and decision-making in entrepreneurship (Ferreira et al., 2019; Phan and Wright, 2018) (Phan and Wright, 2018). Second, we point out several gaps in the literature and provide some suggestions for future research. Particularly, we identify the need to develop entrepreneurial behavioral finance research. Finally, our review also has policy and managerial implications. We provide new insights into the determinants of entrepreneurial firm performance, particularly firm growth.

The paper is organized as follows: the next section presents the theoretical background on entrepreneurs' confidence, then we present the methodology of the identification and selection of the articles and proposes a bibliometric analysis of the empirical literature on the effect of entrepreneur confidence on firm performance. The fourth section provides a syntactical presentation of the literature. The fifth section discusses the main results on the effect of entrepreneurs' confidence and firm performance. Finally, we conclude and provide some suggestions for future research.

2 Theoretical background: entrepreneur's confidence and firm's performance

The drivers of the firm's performance are a key question in management and entrepreneurship in particular. A vast literature has explored the influence of macroeconomic, regulatory, environmental organizational, or social factors on firm performance (Auplat, 2010; Demirgüç-Kunt and Maksimovic, 1998; Kuntarič et al., 2012; Zhou and De Wit, 2009). Among this literature, several studies show that cognitive factors or psychological traits of managers and

entrepreneurs have a non-neglectable effect on the firm's performance (Thomas, 2018). The influence of decision-makers' cognition or psychology on firm performance is particularly high in the specific context of entrepreneurs. First, the high level of managerial discretion (Hambrick and Finkelstein, 1987), associated with high levels of autonomy (Gatewood et al., 1995), magnifies the effects of entrepreneurs' decision process on the firm's outcomes. Second, entrepreneurs make judgments and evaluate opportunities in the environment of high risk and uncertainty, which makes their firm's decisions extremely prone to the effects of cognitive factors (Shepherd et al., 2015).

Seminal articles and reviews on cognitive processes show that there is an inexhaustible list of cognitive constructs in entrepreneurial literature (Astebro et al., 2014; Baron, 1998; Bernoster et al., 2018; Grégoire et al., 2011; Kaplan, 2011; Kerr et al., 2018; Newman et al., 2019; Salmony and Kanbach, 2021; Shepherd et al., 2015; Thomas, 2018; Walter and Heinrichs, 2015; Zhang and Cueto, 2017; Zhang et al., 2019). Among those constructs, we can identify cognitive factors or psychological traits related to the entrepreneur's confidence: overoptimism, overconfidence, dispositional optimism, entrepreneurial self-efficacy (ESE), dispositional positive affect, and planning fallacy. This specific subset of factors draws attention by an increasing quantity, and quality[5]of research in entrepreneurship. This can be explained by the fact that entrepreneurial confidence can be measured in surveys, which facilitates the empirical investigation of its effect on firm performance. Furthermore, entrepreneur confidence directly relates to firm performance as it affects entrepreneur perception of risk and returns, which impacts entrepreneurs' investment and financial decision-making (Gervais and Odean, 2001; Kunda, 1987; Moskowitz and Vissing-Jørgensen, 2002).

Before we assess the papers of this review, we briefly explain the concepts of each cognitive factor related to the confidence we find in entrepreneurial literature[6].

[5] Quality here means in terms of journal impact.

[6] Other cognitive factors related to confidence such as availability or representativeness are studied in the entrepreneurial literature. However, in entrepreneurship literature, these factors investigate the influences of cognitive factors on the entry decision (exploring what differentiates entrepreneurs from

Overconfidence refers to the tendency of individuals to hold unjustifiably high views of their beliefs, knowledge, or abilities (Grinblatt and Keloharju, 2009). This bias can manifest itself in three forms (Moore and Healy, 2008): miscalibration, better than average effect, and overestimation[7]. Miscalibration relates to the tendency of individuals to overestimate the precision of their knowledge. Individuals subject to miscalibration reveal excessive certainty regarding the accuracy of their beliefs. That means that they think they know more than they truly know (Baron and Markman, 1999). This is linked to what Russo and Schoemaker (1992) called metaknowledge, referring to the appreciation of what we know and what we don't know. It concerns "a higher level of expertise: understanding the nature, scope, and limits of our […] primary knowledge (Russo and Schoemaker, 1992, p. 8). Miscalibration represents 22% of the empirical studies on overconfidence (Moore and Schatz, 2017). A better-than-average effect occurs when a majority of decision-makers believe themselves to be better than the median or when a decision-maker mistakenly believes that she is better than others. Overestimation refers to the tendency to overestimate one's actual ability, performance, level of control, or chance of success (Moore and Healy, 2008). Moore and Schatz (2017) complete this definition by stating that overestimation is "thinking that you are better than you are." Approximately 46% of the empirical papers on overconfidence focused on this bias (Moore and Schatz, 2017). Overconfidence can be measured, thanks to experiments (Blavatskyy, 2009; Dittrich et al., 2005; Moore and Healy, 2008), but in the entrepreneurial context, researchers mostly rely on surveys with the calibration of probability judgments method (Fischhoff et al., 1977) or the confidence interval method (Russo and Schoemaker, 1992).

Dispositional optimism (DPO) refers to a stable inclination to expect the most favorable outcomes (Scheier et al., 2001). Dispositional optimism is "a psychological trait that lies at the heart of an individual's outlook on life in general" (Puri and Robinson, 2007, p. 75). Individuals

non-entrepreneurs) and do not explore the cognitive determinants of an entrepreneurial firm's performance.

[7] In the entrepreneurial literature, miscalibration is also referred to as overprecision and better than average effect (overplacement).

high in dispositional optimism exhibit confidence in a way that is both broad and diffuse, and it encourages them to approach challenges with enthusiasm and persistence (Carver and Scheier, 2003). It is a psychological trait that is stable and inherent to some individuals. Dispositional optimism is often associated with resilience and has been shown to favor entrepreneur persistence (Adomako et al., 2016). The latter refers to the human ability to adapt in the face of tragedy, trauma, and other adversities (Bonanno, 2004; Connor and Davidson, 2003; Newman et al., 2019). In the entrepreneurial literature, resourcefulness, hardiness, and optimism are distinct factors in entrepreneurs' resilience (i.e., the capacity an entrepreneur has to overcome particularly difficult circumstances) (Ayala and Manzano, 2014). DPO is traditionally measured with the life orientation test-revised (LOT-R) 10-item scale (Scheier et al., 1994).

Self-efficacy lies at the center of Bandura's social cognitive theory, which emphasizes reciprocal causation regarding cognitive, behavioral, and environmental influences. It relates to the general belief in one's ability to affect the environment, to produce high levels of performance, and to be successful in their behavior (Bandura, 1977). Self-efficacy acts as a self-regulating mechanism that determines whether an economic agent will initiate actions (Bandura, 1989). The entrepreneurial literature underscores that entrepreneurs tend to be high in self-efficacy, leading them to set challenging goals and persist toward the achievement of their goals. Self-efficacy can be measured by using a general self-efficacy scale (Schwarzer et al., 1997; Schwarzer and Jerusalem, 1995) through a survey. Specific self-efficacy concepts have been derived from the general concept of self-efficacy. Entrepreneurship studies have examined a context-specific measure of self-efficacy, called entrepreneurial self-efficacy (Chen et al., 1998; Forbes, 2005; Trevelyan, 2011). This research focuses on the belief in one's ability to perform entrepreneurship-related tasks. Therefore, entrepreneurial self-efficacy can be defined as a belief in one's ability to successfully launch an entrepreneurial venture (McGee et al., 2009). Similarly, other specific measures of self-efficacy have been developed for specific concepts. Managerial self-efficacy refers to the belief in one's own ability to complete managerial tasks effectively within the venture

that has been started (Chandler and Hanks, 1994). Work self-efficacy is defined as the belief in one's capabilities to successfully fulfill work tasks (Alessandri et al., 2015).

Dispositional positive affect refers to stable tendencies to experience positive affect often and across many situations, while state affect refers to the reactions to specific events. Positive affect is associated with increased energy, enhanced cognitive flexibility, increased generation of new ideas, greater confidence, adoption of efficient decision-making, augmented use of effort-reducing heuristics, and an improved ability to cope with stress and adversity (Ashby and Isen, 1999; Baron, 2008; Baron et al., 2011; Fredrickson, 2001). Positive affect is traditionally assessed using the 10 positive affect items from the Positive and Negative Affect Schedule (PANAS) (Watson et al., 1988).

Overoptimism (also referred to as unrealistic optimism or optimist bias) is a cognitive bias that leads to the overestimation of the likelihood of good events and the underestimation of the likelihood of bad events (Zacharakis and Shepherd, 2001). Unlike dispositional optimism, overoptimism is not a stable psychological trait or a "hopeful outlook on life, but an error in judgment" (Weinstein, 1980). It is a bias that varies from one setting to another (Puri and Robinson, 2007) and results from other cognitive factors. It is measured as the difference between entrepreneurs' expectations and real outcomes (Landier and Thesmar, 2009). Overoptimism can thus be considered a general attitude that is driven by several other cognitive factors, including availability, representativeness, or desirability (Weinstein, 1980). This kind of measure permits the elicitation of optimistic behavior but does not permit the elicitation of cognitive factors at the origin of this behavior.

The planning fallacy is the tendency to underestimate how much time is needed to complete a future task despite the knowledge of how long such tasks have previously taken (Baron, 1998; Buehler et al., 2010). This comes from the fact that decision-makers focus on the more optimistic scenario for the task. The planning fallacy phenomenon is often explained by optimism bias (Kahneman and Tversky, 1977). In the entrepreneurial context, Adomdza et al. (2016) propose a single-item measure of planning fallacy that builds on the work of Buehler et al. (1994).

3 Method

In this section we layout how we search and select the literature, which is synthesized in Table 1.1. Following Grégoire et al., (2011) and Shepherd et al. (2015), we use criterion sampling (Patton, 1990) to provide an initial inventory of articles focusing on entrepreneur confidence. We developed two lists of keywords: one related to entrepreneurs and one related to confidence. Regarding confidence, we first rely on the inventory of articles listed in the review papers (see Table 1.1 for a list). We list all the cognitive factors and psychological traits related to confidence identified in these review papers and included: "overconfid*," "overoptimis*," "optimis*," "dispositional optimism," "positive affect," "self-efficacy," "planning fallacy," "cognitive bias(es)", "bias*," "heuristics," "cognitive factors." In developing keywords for "entrepreneurs," we followed Grégoire et al. (2011) and included "entrepreneur*," "small business(es)", New/emerg* business(es), New/emerg* venture*, Founder(s). We then searched for articles that used a combination of at least one keyword in our two lists in their title, abstract, or keywords. We searched the following academic databases: JSTOR, EBSCO, Wiley, Science Direct, and Google Scholar. In this first step, we identified 232 articles that potentially related to our review scope.

Table 1.1: procedures and criteria of the article search

Procedure	Description
1. We search the inventory of articles in some of the most prominent articles reviewing and studying cognitive mechanisms in entrepreneurial literature.	1. We analyzed the following articles: Astebro et al. (2014), Baron (1998), Bernoster et al. (2018), Grégoire et al. (2011), Kaplan (2011), Kerr et al. (2018), Newman et al. (2019), Shepherd et al. (2015), Thomas (2018), Walter and Heinrichs (2015), Zhang and Cueto (2017), Zhang et al. (2019).
2. We use criterion sampling (Patton, 1990) and created two lists of keywords (list A and list B) to be combined for the search in the following databases: JSTOR, EBSCO, Wiley, Science Direct, and Google Scholar.	**A.** overconfid*, overoptimis*, optimis*, dispositional optimism, positive affect, self-efficacy, planning fallacy, cognitive bias(es), bias*, heuristics, cognitive factors. **B.** entrepreneur*, small business(es), New/emerg* business(es), New/emerg* venture*, Founder(s).

We then analyzed these 232 articles and kept only those that met three criteria. First, the articles should be quantitative empirical studies: they need to explore the question of the cognitive micro-foundations of entrepreneurial performance by relying either on survey or database data. Second, the articles' research question had to explore how the entrepreneur's confidence (optimism, overconfidence, self-efficacy, or planning fallacy) influences the firm's outcome (either firm-level decisions or performance). Third, the article had to be published in a peer-

reviewed journal, thus excluding unpublished working papers. In total, 34 articles responded to those three criteria and are listed in Table 1.2 below.

Table 1.3: Selected articles studying confidence

Author	Cognitive factor	Purpose	Method	Sample	Firm's outcome
Adomdza et al. (2016)	Overconfidence / Planning fallacy/ Dispositional optimism	Analyze the role of cognitive biases in obtaining funds.	Survey	764 Canadian inventor-entrepreneurs	Financial structure / Growth
Ahlin et al. (2014)	Self-efficacy (entrepreneurial)	Test the moderating effect of ESE on creativity and firm innovation.	Survey	314 U.S. entrepreneurs and 400 Slovene entrepreneurs	Innovation
Amore et al. (2020)	Dispositional optimism	How the cognitive factor affects the adjustments to entrepreneurs' expectations after receiving negative feedback on performance and the relationship between optimism and innovation.	Experimental	205 Spanish entrepreneurs	Innovation
Astebro et al. (2007)	Overconfidence (miscalibration)/ Dispositional optimism	How biases affect an entrepreneur's decision to keep investing even after being told to quit.	Survey	780 Canadian entrepreneurs	Investment decision
Ayala and Manzano (2014)	Dispositional optimism	Longitudinal analysis to test which cognitive factors related to resilience predicts success.	Survey	534 Spanish entrepreneurs from the tourism industry	Growth
Baek and Neymotin (2019)	Overoptimism	To investigate whether overoptimistic entrepreneurs innovate more and from which sources of funding they ask for credits.	Survey	11,834 firm-year observations from U.S.	Financial decisions / innovation
Baron et al. (2011)	Dispositional affect	Investigation on the effects and limits of the entrepreneur's dispositional positive affect on the firm's performance.	Survey	157 entrepreneurs from U.S.	Growth

(Continued)

Author	Cognitive factor	Purpose	Method	Sample	Firm's outcome
Baron et al. (2016)	Self-efficacy (entrepreneurial)	Investigation on the relationship between ESE, self-control, and firm performance.	Survey	167 entrepreneurs from the Mid-West companies	Growth
Baum and Locke (2004)	Self-efficacy	A longitudinal study on how ESE affects a firm's performance.	Survey	229 entrepreneurs-chief and 106 associates	Growth
Bernoster et al. (2018)	Overconfidence (miscalibration)/ Dispositional optimism	The effects of cognitive factors on Entrepreneurial Intention (EI) and Entrepreneurial Orientation (EO).	Survey	253 health entrepreneurs and 173 Dutch students	Entrepreneurial Orientation (EO)
Cumberland et al. (2015)	Self-efficacy (entrepreneurial)	Analyze each dimension of ESE on a firm's performance on a sample of franchisees.	Survey	200 U.S franchisees' owners	Subjective Performance
Elhem et al. (2015)	Dispositional optimism	Panel study on the effects of dispositional optimism on a firm's efficiency.	Survey	67 Tunisian SMEs from 2008 to 2012	Technical Efficiency
Fourati and Attitalah (2018)	Overoptimism	Investigation on entrepreneur's debt decisions	Survey	160 Business start-ups from the U.S.	Financial Structure
Friedman (2007)	Overconfidence	How cognitive factors affect the propensity to create and invest in start-up activity.	Survey	830 American entrepreneurs and 431 non-entrepreneurs as a group of control	Financial Structure
Gudmundsson and Lechner (2013)	Miscalibration / Overoptimism	Path analysis on the effects of cognitive factors on a firm's survival.	Survey	115 Icelandic entrepreneurs	Survival
Hallak et al. (2015)	Self-efficacy (entrepreneurial)	Structural equation measuring the effects of ESE on firm's performance.	Survey	301 entrepreneurs	Subjective Performance

(Continued)

Author	Cognitive factor	Purpose	Method	Sample	Firm's outcome
Hmieleski and Baron (2008)	Self-efficacy (entrepreneurial) / Dispositional optimism	Investigation on the moderating effects of dispositional optimism on ESE and performance.	Survey	159 entrepreneurs from the U.S.	Growth
Hmieleski and Baron (2009)	Dispositional optimism	Analyze the effects of dispositional optimism on a firm's performance	Survey	185 entrepreneurs from the U.S.	Growth
Hmieleski and Corbett (2008)	Self-efficacy (entrepreneurial)	Analyze the contracting effects of ESE and improvisational behavior on a firm's performance.	Survey	159 entrepreneurs from the U.S.	Growth
Hmieleski et al. (2013)	Dispositional optimism	Moderation analysis on optimism, environmental factors, and improvisational behavior.	Survey	185 entrepreneurs from the U.S.	Growth
Imran et al. (2019)	Self-efficacy (entrepreneurial)	Test whether EO can mediate the effects of ESE on a firm's performance using a partial least squares path model	survey	353 Pakistani entrepreneurs	EO / Subjective Performance
Invernizzi et al. (2017)	Dispositional optimism / Overoptimism	Investigation on the effects of cognitive factors on a firm's failure.	Survey	203 Italian SME owners	Survival
Khedhaouria et al. (2015)	Self-efficacy	A model to examine how entrepreneur’s creativity, self-efficacy, and EO affect small-firm performance.	Survey	256 French small-firm owners	EO / Subjective Performance

(Continued)

Author	Cognitive factor	Purpose	Method	Sample	Firm's outcome
Landier and Thesmar (2009)	Overoptimism	Panel data study on cognitive factors affects entrepreneur's debt decisions.	Survey	30,863 unbalanced panel observations	Financial Structure / Profitability
Liang (2019)	Self-efficacy (entrepreneurial)	investigate the effects of self-efficacy, process feedback, and task complexity on decisions by managers to continue or discontinue a new product after receiving negative performance feedback.	Experimental	244 MBA students	Innovation
Luthans and Ibrayeva (2006)	Self-efficacy	Structural equation measuring self-efficacy and environmental factors on performance.	Survey and qualitative study	133 entrepreneurs surveyed and 239 qualitatively assessed from Kazakhstan and Kyrgyzstan	Subjective Performance
McCarthy et al. (1993)	Overconfidence (better than average)	A longitudinal study on investment decisions in overconfident entrepreneurs.	Survey	2,994 entrepreneurs	Investment decision
Mcgee and Peterson (2017)	Self-efficacy (entrepreneurial)	A longitudinal study on the effects of ESE and EO on a firm's performance.	Survey	311 entrepreneurs from the U.S.	EO / Subjective Performance
Mielniczuk and Laguna (2018)	Self-efficacy / Positive Affect	Mediation analysis of Positive affect on Self-efficacy and firm innovation.	Survey	206 entrepreneurs	Innovation
Nag et al. (2020)	Self-efficacy	Investigate the effects of entrepreneurs scanning behavior and its mediators, such as self-efficacy, on SME's performance and innovation.	Survey	87 SME's CEOs	Profitability / innovation

(Continued)

Author	Cognitive factor	Purpose	Method	Sample	Firm's outcome
Palmer et al. (2019)	Self-efficacy	Investigate the interplay of EO, traits of dominance, and self-efficacy on firm performance using fsQCA.	Survey	723 Austrian entrepreneurs	EO / Subjective Performance
Prajapati and Biswas (2011)	Self-efficacy (entrepreneurial)	The effect of ESE and other entrepreneur's characteristics on a firm's performance.	Survey	148 Indian entrepreneurs	Subjective Performance
Seet et al. (2020)	Self-efficacy (entrepreneurial)	Structural equation model testing ESE, EO, market orientation, and firm's performance	Survey	204 Australian entrepreneurs	EO / Subjective Performance
Simon and Houghton (2003)	Overconfidence (miscalibration)	Field research on the effects of overconfidence on a firm's innovation.	Experimental	55 SME owners	Innovation

We observe some interesting patterns in this literature. Although the literature on this topic remains limited, we observe an increasing trend in the number of publications per year. After 2002, scholars started to publish more articles about the impact of entrepreneurs' confidence on a firm's performance. Indeed, before this date, the article by McCarthy et al. (1993) is the only article we identified that addressed this topic. One possible reason for this time gap can be that most measures to elicit confidence were created more recently (e.g., the first measure of ESE was created in 1998 (Chen et al., 1998)). Overall, this underscores that this topic has become of increasing interest for management scholars in recent years.

Table 1.3 presents the article distribution across the journals. The journal that most publishes articles on the topic is well-established journals in entrepreneurship: Journal of Business Venturing, Small Business Economics, and Strategic Entrepreneurship Journal. Two of the papers were published in the Academy of Management Journal. To date, other journals have only published one paper on this issue. Most of the journals are from the entrepreneurship field, but there are also articles published in economic journals, including the Journal of Behavioral Decision-Making and the Journal of Economic Psychology; in psychology journals, such as the Journal of Applied Psychology; and in finance journals, such as The Review of Financial Studies.

Table 1.3: summary of future research directions

Journal	Nb of articles
Journal of Business Venturing	3
Small Business Economics	3
Strategic Entrepreneurship Journal	3
Academy of Management Journal	2
Journal of Small Business Management	2
Sustainability	2
Economics Bulletin	1
European Management Journal	1
International Journal of Entrepreneurship and Small business	1
International Journal of Innovation Management	1
International Journal of Manpower	1
International Small Business Journal	1
Journal of Applied Psychology	1
Journal of Behavioral Decision Making	1
Journal of Business and Industrial Marketing	1
Journal of Business Research	1
Journal of Developmental Entrepreneurship	1
Journal of Economic Psychology	1
Journal of International Business Studies	1
Journal of Travel Research	1
Organization Science	1
The Journal of Creative Behavior	1
The Journal of Entrepreneurship	1
The Review of Financial Studies	1
Wharton Research Scholars Journal	1

4 Synthesis of the literature on entrepreneur confidence and firm performance

In this section, we present the main categories within which we organize our corpus of literature. First, we present a synthesis of the literature with a conceptual model summarizing the

main findings of this literature (Figure 1.1) and in Table 1.2 we present the list of the 34 empirical articles of the literature review, according to the classification we describe below. Second, we explain the two groups of firm-level variables studied in the literature by distinguishing firm decision variables from firm performance variables.

Figure 1.1 summarizes the main findings of the literature on entrepreneurs' confidence and firm performance. Cognitive factors and psychological traits influence entrepreneur perception and judgments, which, in turn, affect their decisions. In our corpus of articles, some studies investigate the effects of entrepreneur confidence on the firm's related decisions while some other articles investigate its effect on the firm's performance. Few articles investigate the influence of entrepreneur confidence in both firms' decisions and firm performance (Adomdza et al., 2016; Khedhaouria et al., 2015; Landier and Thesmar, 2009).

Figure 1.1: The figure summarizes the main findings of the literature, exposing and classifying the underlying effects of the entrepreneur's confidence on the firm's decisions, firm's performance, or both.

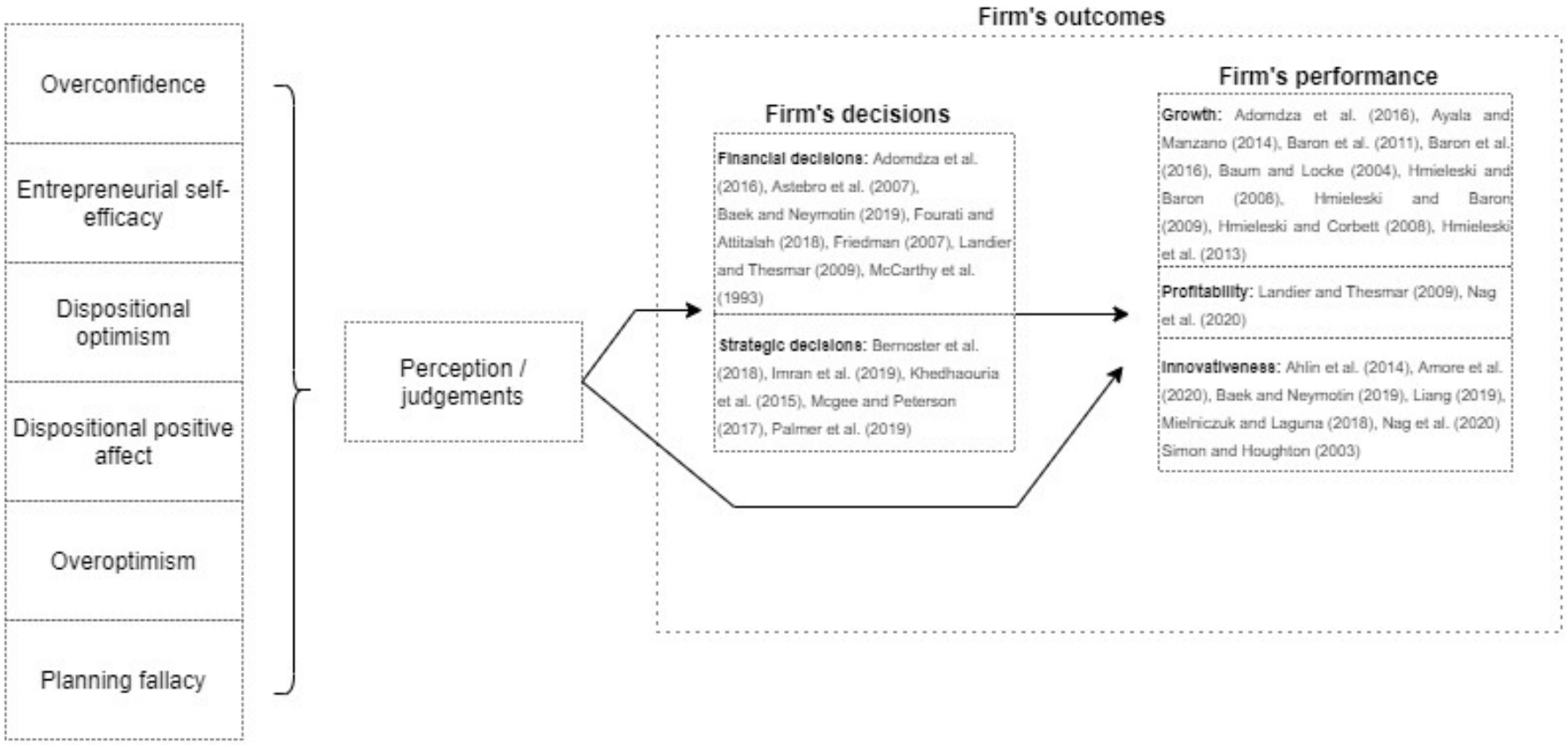

Table 1.2 presents the list of the 34 empirical articles of the literature review, according to the classification we describe below. The first column displays the names of the authors, the second column displays the purpose of the research, the third column displays the method/sample, and the fourth column displays the firm outcome.

The literature reviewed distinguishes two levels of analysis: firm decisions and firm performance. A firm's decision level includes organizational variables that define a firm's financial and strategic decisions. First, our corpus of articles includes papers focusing on investment decisions. More precisely, these papers explore how entrepreneur confidence affects investment intensity, that is, the amount of investment. This is captured either by accounting variables, such as the variation of total assets over a given period (McCarthy et al., 1993) or by declared measures, such as the amount of expenditure realized by the entrepreneur over a period of time (Astebro et al., 2007). Second, our review includes papers focusing on firm financial structures. In particular, they explore how entrepreneur confidence influences the capital structure of firms (Fourati and Attitalah, 2018; Friedman, 2007), the term structure of debt (Landier and Thesmar, 2009), or the choice between close- or weak-tie finance (Adomdza et al., 2016). Finally, six papers on strategic decisions focus on the influence of entrepreneur confidence on entrepreneurial orientation (EO), which addresses entrepreneurial strategy making and the extent to which firms are characterized by a decision-making style that is proactive, risk-taking and innovative, as they pursue opportunities (Rauch et al., 2009). These six papers (Bernoster et al., 2018; Imran et al., 2019; Khedhaouria et al., 2015; McGee and Peterson, 2019; Palmer et al., 2019; Seet et al., 2020) rely on the three-dimensional scale of Covin and Slevin (1989).

Several aspects of firm performance are studied in the literature reviewed. The most explored topic is firm growth (Adomdza et al., 2016; Ayala and Manzano, 2014; Baron et al., 2011, 2016; Baum and Locke, 2004; Hmieleski et al., 2013; Hmieleski and Baron, 2008, 2009; Hmieleski and Corbett, 2008). These papers rely on traditional measures of growth, either variation in firm sales or firm employment. The information on firm growth is computed from accounting information, declared by the entrepreneurs in the survey, or both. Our corpus of articles also includes papers

focusing on firm performance at a general level, relying on subjective measures. Indeed, in these papers, entrepreneurs are asked to assess how they perceive their performance regarding their competitors (Cumberland et al., 2015; Hallak et al., 2012, 2015; Imran et al., 2019; Khedhaouria et al., 2015; Luthans and Ibrayeva, 2006; McGee and Peterson, 2019; Prajapati and Biswas, 2011; Seet et al., 2020). Other papers focus on firm survival by exploring the impact of entrepreneur confidence on the probability of failure of investment in the firm (Gudmundsson and Lechner, 2013; Invernizzi et al., 2017). Some articles explore innovation or firm innovativeness that is elicited through surveys that pose specific questions to entrepreneurs on reported innovations or the introduction of new products (Ahlin et al., 2014; Baek and Neymotin, 2019; Liang, 2019; Mielniczuk and Laguna, 2018; Nag et al., 2020), or assessed by researchers (Amore et al., 2020; Simon and Houghton, 2003). Finally, one paper relies on technical efficiency (Elhem et al., 2015), and one paper uses an accounting measure of profitability (Landier and Thesmar, 2009).

5 Entrepreneur confidence and firm performance

In this section, we synthesize the main findings of the literature on how entrepreneur confidence influences firm outcomes. We structure our review around the primary outcomes identified. We start by discussing the papers that directly relate to entrepreneur confidence and firm performance. We then present the results of the articles that examine the impact of entrepreneur confidence on firm decisions. Furthermore, we analyze the studies that adopt a more complete view of the process by assessing the effects of entrepreneur confidence on both firm decisions and performance. This allows us to identify whether a firm's decision is an independent, mediating, or moderating variable in the relationship between entrepreneur confidence and firm performance.

The most common approach of the literature is to focus on the impact of entrepreneur confidence on the perception of firm performance by the entrepreneurs themselves. Most of the articles explore the impact of entrepreneurial self-efficacy on entrepreneurs' perception of performance in comparison to that of their peers. These papers globally observe a positive

influence of entrepreneurial self-efficacy on perceived firm performance (Prajapati and Biswas, 2011). However, they underscore that the impact of entrepreneurial self-efficacy on firm performance is affected by several contingency factors, including the competitive intensity and technological turbulence of the environment (Cumberland et al., 2015), the gender of the entrepreneur (Hallak et al., 2015), the degree of self-control (Baron et al., 2016) and entrepreneurial orientation (Imran et al., 2019; Palmer et al., 2019; Seet et al., 2020). Overall, these results suggest that entrepreneurial self-efficacy increases perceived performance, but there is no clear evidence of the influence of entrepreneurial self-efficacy on actual firm performance.

This issue is addressed by articles that focus specifically on the influence of entrepreneur confidence in firm growth. These articles explore the influence of dispositional optimism or entrepreneurial self-efficacy on firm growth. Globally, this literature observes a positive relationship between entrepreneurial self-efficacy or dispositional optimism and firm growth (Ayala and Manzano, 2014; Baum and Locke, 2004; Hmieleski and Corbett, 2008; Luthans and Ibrayeva, 2006). Nevertheless (Hmieleski et al., 2013) report a negative influence of dispositional optimism on firm growth, particularly in dynamic environments. Furthermore, some authors observe a nonlinear effect (inverted U-shaped) between dispositional optimism or entrepreneurial self-efficacy and firm growth (Baron et al., 2011; Hmieleski and Baron, 2008). Several papers also identify contingency variables that moderate the relationship between entrepreneur confidence and firm growth, such as the dynamism of the environment, which magnifies the influence of entrepreneur confidence on firm growth (Hmieleski et al., 2013; Hmieleski and Baron, 2009; Hmieleski and Corbett, 2008), entrepreneurial experience (Hmieleski and Baron, 2009), or firm size, which reduces the impact of entrepreneur confidence (Baron et al., 2011). Finally, a subset of the literature explores the influence of entrepreneur confidence on firm innovation. Some scholars experimentally investigate the influence of overconfidence, ESE, and dispositional optimism (Amore et al., 2020; Liang, 2019; Simon and Houghton, 2003), some others use surveys to investigate overoptimism and entrepreneurial self-efficacy (Ahlin et al., 2014; Baek and Neymotin, 2019; Mielniczuk and Laguna, 2018; Nag et al., 2020) on a firm's

propensity to innovate. These authors observe a positive influence of these factors on firm innovation, but they also underline that dispositional optimism can reduce the firm's innovation effectiveness. In summary, the evidence suggests that entrepreneur confidence tends to favor growth-oriented behaviors. However, it is not possible to draw clear conclusions about the effect of entrepreneur confidence on firm success, as high growth might be associated with poor performance in terms of profitability and/or survival (Davidsson et al., 2009). Alternatively, "the attributes that increase the probability of opportunity exploitation do not necessarily increase the probability of success" (Shane and Venkataraman, 2000).

A small body of literature that addresses this issue and explores the influence of overoptimism on firm survival observes a negative relationship (Gudmundsson and Lechner, 2013; Invernizzi et al., 2017). Finally, Elhem et al. (2015) adopt a different methodological approach by capturing a firm's performance through its technical efficiency. They observe a negative impact of dispositional optimism on firm efficiency. Overall, this is consistent with the idea that distorted perception of the actual potential of the investment opportunity introduced by entrepreneur confidence is detrimental to firm performance.

The literature that focuses on how entrepreneur confidence influences firm decisions are rather scarce, as we only identify five papers that address this topic. Most of this literature focuses on how entrepreneur confidence impacts firms' financial decisions. First, some authors explore how miscalibration and dispositional optimism (Astebro et al., 2007), or better than the average effect (McCarthy et al., 1993), affect firm investment policy. Both papers emphasize the phenomenon of escalation of commitment driven by entrepreneur confidence. Indeed, these papers highlight that some entrepreneurs tend to reinvest more in the context of negative feedback, although they do not agree on the cognitive factors driving this behavior. McCarthy et al. (1993) observe that overconfident entrepreneurs are more prone to the escalation of commitment, whereas Astebro et al. (2007) do not observe a significant influence of overconfidence on this behavior. Indeed, Astebro et al. (2007) observe that entrepreneurs high in dispositional optimism are more prone to the escalation of commitment. Furthermore, they

underscore the moderating effect of sunk costs on these phenomena. The discrepancy in the results related to the effect of overconfidence might be attributed to the fact that the two papers do not focus on the same aspect of overconfidence: better than average effect in the case of McCarthy et al. (1993) and miscalibration by Astebro et al. (2007). This suggests the importance of distinguishing between the different forms of overconfidence when considering the relationship between overconfidence and firm-level variables.

Second, two papers explore the influence of entrepreneur confidence on capital structure decisions. Friedman (2007) explores the influence of overconfidence on venture capital structure choices, although the author does not observe a significant effect on the variable. Fourati and Attitalah (2018) study the influence of overoptimism on capital structure decisions and observe that overoptimistic entrepreneurs tend to use more debt in the financing of their firms. This result is consistent with the theoretical perspective according to which overoptimistic entrepreneurs overestimate their ability and underestimate the costs of financial distress (Heaton, 2002).

Finally, Bernoster et al. (2018) focus on the influence of overconfidence and dispositional optimism on firm entrepreneurial orientation. The authors observe that although overconfidence does not significantly influence a firm's entrepreneurial orientation, dispositional optimism does positively impact it, particularly the risk-taking dimension of entrepreneurial orientation. In short, the few studies in the literature on the influence of entrepreneur confidence on firm-level decisions mainly focus on financial decisions. The lack of research does not allow us to develop an overall understanding of this literature for the moment, as it focuses on different forms of entrepreneur confidence and firm decisions. Nevertheless, the evidence reveals the fact that changes in risk perception are a key channel in understanding how the confidence of entrepreneurs influences the decisions of firms. We next turn to papers that offer a more developed view of how entrepreneur confidence influences firm performance by exploring the intermediate role of firm decisions.

Although from a conceptual perspective, it makes sense to consider that a firm's decision either implicitly or explicitly affects a firm's performance, most papers reviewed (21) do not

account explicitly for the mediating effect of firm decisions between individual-level entrepreneur confidence variables and entrepreneurial firm performance. Indeed, only eight papers explicitly account for firm decisions when exploring the impact of entrepreneur confidence on firm performance. Most of these papers focus on the interplay of entrepreneurial orientation, self-efficacy, and firm performance. Two of them find no direct relationship between self-efficacy and firm entrepreneurial orientation, while three recent research using structural equations find a significant relationship. Khedhaouria et al. (2015) observe a positive influence of entrepreneurial orientation on firm performance as well as a positive effect of self-efficacy on firm performance, although the authors did not find evidence of a link between self-efficacy and entrepreneurial orientation. McGee and Peterson (2019) observe the role of entrepreneur confidence and firm-level decision variables as substitutes over time. The authors find that in young entrepreneurial ventures, entrepreneurial self-efficacy strongly influences firm performance, whereas this effect vanishes over time. In contrast, although they do not identify the influence of entrepreneurial orientation on firm performance in young firms, they do find that entrepreneurial orientation influences firm performance in the long term. New research, however, using path analysis and the fsQCA method finds that entrepreneurial orientation combined with self-efficacy can positively affect the firm's performance (Imran et al., 2019; Palmer et al., 2019; Seet et al., 2020). Overall, these results underscore that individual-level decision processes (entrepreneur confidence) and organization-level decision processes (such as entrepreneurial orientation) are substitutes rather than complimentary phenomena.

However, this seems less the case when we consider financial decision-making, which is an intermediate variable between entrepreneur confidence and firm performance. We identified four papers that explore how financial decisions are influenced by entrepreneur confidence, which in turn influences firm performance. Landier and Thesmar (2009) observe that overoptimistic entrepreneurs choose a shorter-term structure for their debt and that their financial decisions have a mediating effect on firm performance. Indeed, they show that entrepreneurs who borrow less in the short term also show lower profitability. Finally, Adomdza et al. (2016) observe no effect of

overconfidence or dispositional optimism on a firm's decision or performance. However, they show that planning fallacy increases the amounts of funding raised by entrepreneurs because planning fallacy enables them to be more convincing toward providers of finance with whom they have strong ties, such as family members, as opposed to weak-tie financiers, such as banks. The authors emphasize that the planning fallacy indirectly influences firm growth via its effect on a firm's financing capacity. Indeed, planning fallacy increases the financial capacity of the firm, which in turn experiences higher growth. Thus, their results are consistent with the fact that financial decisions are a mediating variable between entrepreneur confidence and firm performance. Lastly, Baek and Neymotin (2019) underline that overoptimistic entrepreneurs invest more in innovation; however, they also resort more to informal sources of funding, which charge a higher cost of capital. In general, this literature points out the complex interrelationship between entrepreneur confidence and firm performance, as firm financial decisions play a moderating or mediating role in this relationship.

6 Conclusion

A growing empirical literature investigates how entrepreneur confidence influences the performance of entrepreneurial ventures. This article proposes the first systematic assessment and classification of this emerging literature. We critically discuss the results of the literature and develop a conceptual framework that facilitates its classification, allowing for a systematic review of the impact of entrepreneur confidence on firm performance. More generally, our research, by unfolding entrepreneur confidence across levels of analysis, contributes to further advancing knowledge of the dynamic interactions between individual and organizational levels of decision-making. We also engage in a renewed interest in the behavioral foundations of organizations and decision-making (Felin et al., 2015; Ferreira et al., 2019; Phan and Wright, 2018).

The main contribution of this review of the literature is to point out some knowledge gaps and to provide suggestions for future research. First, our analysis underscores that the literature

tends to focus on a limited aspect of entrepreneur confidence, primarily self-efficacy, dispositional optimism, overconfidence, and overoptimism. Other aspects of entrepreneur confidence considered in the literature, such as confirmation bias, hindsight bias, self-serving biases, or representativeness, have been shown to influence entrepreneurs' decisions (Baack et al., 2015; Cassar and Craig, 2009; Shepherd et al., 2012), but the impact on the performance of entrepreneurial firms has not yet been investigated. Second, the current literature does not explore possible cross effects between several forms of entrepreneur confidence. For instance, it has been shown that overconfidence and dispositional optimism may have confounding effects, which could explain the ambiguity of the current results (Hilton et al., 2011). Third, the results also show some time substitution effects between individual- and organizational-level variables. Indeed, the influence of the individual-level variable appears to diminish as a firm grows older. Exploration of how the influence of entrepreneur confidence evolves over time as the governance structure of the firm becomes more formal could provide interesting new insights into the time substitution of cognitive and organizational factors. Fourth, the results highlight that an important aspect of the studies relies on subjective measures of performance. However, subjective performance might also be influenced by individual-level judgment and not be a specific organizational-level outcome. Thus, to test the underlying conceptual model presented in Figure 1, it would be interesting to develop a specific empirical study that would allow us to disentangle the relationship between individual judgment and firm-level variables. Fifth, the empirical investigation of this conceptual model could be extended by testing the moderating effect of other cognitive variables, such as cognitive style (Zhang et al., 2020). Sixth, scholars point out a connection between entrepreneurial orientation and innovation (Madhoushi et al., 2011; Pérez-Luño et al., 2011; Veidal and Korneliussen, 2013). However, the literature on confidence focuses on the relationship between entrepreneurial orientation and subjective performance only. Therefore, research should investigate the link between confidence, entrepreneurial orientation, and innovation. Finally, our results show that financial decisions play a central role in the causality chain between entrepreneur confidence and firm performance. Moreover, entrepreneur confidence seems to strongly impact the risk perceptions of individuals. Therefore, it seems that

developing both theoretical and empirical research on entrepreneurial behavioral finance is central to better understanding the black box between entrepreneur confidence and entrepreneurial firm performances.

Finally, our review has both policy and managerial implications. First, it provides new insights into the determinants of entrepreneurial firm performance, particularly firm growth. This review shows which are the cognitive factors with positive effects on performance and which are those with negative effects. This is a key policy implication, as a better understanding of the principal drivers of the growth of small businesses is a key issue for economic policy at the European level. Policy makers interested in analyzing which dimensions affect firm performance can benefit from the results we find. Furthermore, a better understanding of the influence of cognitive biases, such as entrepreneur confidence on financial decisions, will help improve learning programs toward entrepreneurs to "unbias" them and raise their awareness of decision errors due to these biases. Finally, our research has managerial implications; our findings may be relevant for entrepreneurship stakeholders, such as banks, VCs, or public organizations, by helping them understand factors strictly related to entrepreneurs, such as cognitive factors, and thus improving their financial services for entrepreneurship fundraising.

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Chapter 2 - Entrepreneurial self-efficacy and financial decisions

Previous research shows that Entrepreneurial self-efficacy (ESE) is related to many positive outcomes for entrepreneurs and the firm's results (e.g., firm's growth, high performance, persistence, goal commitment). Few studies, however, investigate how ESE affects financial decisions. This gap is surprising given that financial decisions relate to many of the positive outcomes achieved by ESE, including firm performance. The current study attempts to fill this gap in the literature by analyzing three different questions: (1) entrepreneurs high in ESE raise more external funds? (2) From which sources do they raise external funds? (3) is there a moderation effect between ESE and external financing on firm performance? Using the IV approach, we find a negative moderation effect between ESE and external financing on performance. The results also show that entrepreneurs high in ESE raise more external funds and are more capable of raising funds from venture capitalists or business angels. Overall, these results help to explain the effects of ESE on a firm and generate implications for public policies that seek to channel resources to small firms.

Keywords: entrepreneurial self-efficacy, external financing, firm performance, banks, venture capital

JEL Codes: L26, D91, G21

1 Introduction

Entrepreneurial ventures constantly face wealth constraints that hinder the exploitation of new opportunities and limit their performance (Winborg and Landström, 2001). Not only the availability of internal finance is limited in SMEs (Carpenter and Petersen, 2002), but raising external financing is also challenging due to information asymmetry between investors and entrepreneurs (Stiglitz and Weiss, 1981). Based on the information asymmetry concept, economic theories generally discuss SMEs financing based on risk shifting, capital staging, and contractual rights. Economic theories are, however, often limited to fully explain entrepreneurial financing (Shane and Cable, 2002) – which demands insights from other fields to explain the observable heterogeneity in SMEs' financing decisions.

Recent approaches on behavioral finance start investigating variables related to the entrepreneurial decision-making process that could explain financial decisions (Cassar and Friedman, 2009; Fraser et al., 2015; Shepherd et al., 2015). The focus on the entrepreneurial decisions rather than on the investor's rejection rate is justified by the great number of entrepreneurs who just decide not to seek external financing (Fraser, 2019). Besides, financial decisions are not limited to the choice to seek external financing or not, but also the type of external financing source (Adomdza et al., 2016). While the literature is still incipient, this research aims to explore further how some behavioral factors can affect entrepreneurial financial decisions.

In this paper, we use the concept of entrepreneurial self-efficacy (ESE), derived from social cognitive theory (Bandura, 1977), to study entrepreneur's financial decisions. ESE refers to an individual's belief in his/her capability to perform tasks and roles aimed at entrepreneurial outcomes (Chen et al., 1998). The literature shows that ESE is a good predictor of a firm's performance and relates both to entrepreneurial actions and behavior (Newman et al., 2019). Still, it is less clear how ESE assists entrepreneurs to overcome financial challenges that can lead to

the firm's performance and growth. Nonetheless, the same literature provides many insights that ESE can be a predictor for venture funding.

By analyzing ESE and financial decisions we aim to contribute to the understanding of SMEs' financial gap. Not every entrepreneur has the ability to raise external funds or grow their firms (Fraser, 2019; Manigart and Wright, 2013); thus, ESE may assist entrepreneurs to overcome the difficulties that stem from dealing with external investors.

We draw upon information asymmetry, organizational theory, and relevant ESE literature to investigate how ESE affects entrepreneurial finance decisions? We develop two hypotheses: (1) whether entrepreneurs high in ESE raise more external funds? and (2) from which sources they raise funds? Methodologically, we use a survey addressed to French entrepreneurs to empirically assess their level of ESE as well as financial information of their ventures. The sample consists of 114 observations of entrepreneurs who replied to our survey. We test the hypotheses using both Tobit and Probit models to assess entrepreneur's financial decisions. Also, we use OLS regressions for robustness tests for the linear models.

The findings suggest that entrepreneurs high in ESE raise more external funding – both equity and debt – than entrepreneurs low in ESE (Table 3). Besides, entrepreneurs high in ESE are more likely to raise funds from venture capitalists (VC) and Business Angels (BA) than entrepreneurs low in ESE. In contrast, no significant result was found in entrepreneurs high in ESE having greater chances of raising funds from banks.

The implications of this study are twofold. First, entrepreneurial education can particularly benefit from understanding the results of ESE as entrepreneurial self-efficacy can be learned through experience and education. Second, policy makers interested in channeling funds to SMEs can understand entrepreneurial characteristics that lead to higher access to external financing.

The remainder of this paper is structured as follows. The second section refers to the literature review. Section 3 presents the conceptual framework used to construct the hypotheses. Section 4 proceeds to methodology and section 5 exposes the results. Section 6 discusses the results.

Finally, section 7 presents some limitations and suggestions for future research and section 8 presents the concluding remarks.

2 Literature review

2.1 Entrepreneurial Self-efficacy, performance, and financial decisions

The Entrepreneurial Self-efficacy (ESE) construct comes from the broader concept of Self-efficacy, which traces back from Social Cognitive Theory (SCT) developed by Bandura (1989, 1986, 1977). The concept of SCT emphasizes reciprocal causation regarding cognitive, behavioral, and environmental influences. One of the main contributions of SCT is that individuals can learn through direct experience and vicarious observation of others undertaking the phenomenon. Self-efficacy is one of the key mechanisms derived from SCT, whereby individuals assess their efficacy that influences the action that individuals choose to engage in, the effort they will expend, and their persistence when confronted with barriers (Bandura, 1982). The theory of SCT also suggests that self-efficacy can help to regulate performance and motivation (Wood and Bandura, 1989), acting as a self-regulating mechanism that determines whether an economic agent will initiate actions (Bandura, 1989).

Initially, ESE has gathered an increased interest among entrepreneurship scholars due to much evidence that individual's belief in their performance successfully influences their intention to launch a new venture (Chen et al., 1998; Krueger Jr and Brazeal, 1994; McGee et al., 2009). Later, researchers started to investigate the link between ESE and entrepreneurial outcomes (Baum et al., 2001; Hmieleski and Baron, 2008; Hmieleski and Corbett, 2008; McGee and Peterson, 2019); after calls for further investigation on the relationship between self-efficacy and venture performance (Markman et al., 2002).

In terms of the firm's performance, multiple evidence points out for good relationship between ESE and performance. A recent meta-analysis conducted in Miao et al. (2017) on 27 different studies found a moderately strong effect (β=0.309) on turnover growth and profitability.

The result is even stronger for subjective performance measures (β=0.354). Besides profitability and subjective performance, ESE is also known for improving firm's growth (Baum and Locke, 2004; Hmieleski and Baron, 2008; Hmieleski and Corbett, 2008), and firm's innovation (Ahlin et al., 2014; Liang, 2019; Nag et al., 2020). Nonetheless, the benefits of ESE on the firm's performance can be moderated by the entrepreneur's cognitive factors and environmental factors (Hmieleski and Baron, 2008); in some cases, the moderation effect acts on the firm's performance negatively.

However, In the ESE literature, few studies are analyzing how ESE relates to the entrepreneur's financial decisions. One study conducted by Cassar and Friedman (2009) relates ESE to higher personal investment in the entrepreneurial venture. The authors conclude that ESE increases the likelihood of starting a new business and associates with more aggressive investment decisions. On the side of outside financing, Coleman and Kariv (2014) found that ESE increases the willingness to raise capital from external sources. But the authors do not analyze whether entrepreneurs high in ESE overpass the financial constraints typical of SMEs.

2.2 Financial constraints and information asymmetry

One of the main issues SMEs face to obtain external financing from investors is their information opacity. In the context of market imperfection, information asymmetry arises in the relationship between entrepreneurs and investors (Stiglitz and Weiss, 1981). On the one hand, ex-ante (pre-agreement) issues cause investors to fear the firm's ability to repay the financing in adverse selection. On the other hand, ex-post issues might lead to moral hazard or risk shifting as founded entrepreneurs might change their behavior and not sustain an optimal level of effort or follow a riskier project (Jensen and Meckling, 1976; Watson, 1984). The result is either a credit rationing or a higher cost of financing for SMEs.

Several theories based on the information asymmetry problem address how market imperfections impact SME financing. Agency theory states a conflict of interest between the

entrepreneur (the agent) and the financier (the principal) (Jensen and Meckling, 1976). To limit the opportunistic behavior of entrepreneurs financiers might require, for example, more collateral to align their interests (Rajan and Zingales, 1995), which is slightly more difficult for small firms that lack enough assets. In other cases, investors, such as venture capitalists, specialize themselves to select only the most prominent firms and entrepreneurs to avoid these conflicts (Manigart and Wright, 2013). Likewise, the pecking order theory (POT) describes a preference among the options to finance viable projects (Myers and Majluf, 1984). Accordingly, entrepreneurs would first rely on internal financing before seeking external financing, which is the least expensive option for the firm. Then, between issuing equity or debt, entrepreneurs would first rely on debt, the cheapest option.

Scholars still analyze in which conditions these economic explanations properly address the financial decisions of entrepreneurs. Though much empirical evidence supports the POT and agency theory (Chittenden et al., 1996; Cosh et al., 2009; Michaelas et al., 1999; Rajan and Zingales, 1995), some scholars question whether these economic theories fully account for all observed variation in financing decisions (Fraser, 2019; Minola et al., 2013; Shane and Cable, 2002).

Some scholars defend that even the traditional pecking order theory cannot be generalized to some specific cases. Some scholars found evidence for the regular POT in technological and innovative firms, in special for the use of short-term debt given the high level of information asymmetry stemming from these firms (Giudici and Paleari, 2000; Manigart and Struyf, 1997). However, more recent studies point out that technological and innovative firms follow the reverse POT (Hogan and Hutson, 2005; Minola et al., 2013). These recent studies can be in line with the development of the venture capital market in recent years in developed countries (Bronzini et al., 2020). Indeed, these technological and innovative firms are the focus of venture capitalists (VC) and business angels (BA), concentrating a great part of their investments (Lee and Wahal, 2004). The non-random assignment of VCs' investment in these firms suggests that the equity type of investment can have the least information asymmetry level for high-tech firms.

On the other hand, scholars also study entrepreneur's characteristics and cognitive constructs that might lead to different financing decisions. Indeed, Fraser (2015) states that we are in the early stages of understanding how cognitive biases may affect finance application decisions. Atherton (2009), for example, extends the POT to include human capital variables in the analysis. Entrepreneur's characteristics such as network, prior experience, and knowledge can influence the entrepreneur's decision to seek equity or debt. Moreover, behavioral constructs can also affect financing decisions (Fraser et al., 2015). Accordingly, Fourati and Attitalah (2018) conclude that overconfident entrepreneurs prefer equity financing due to risk perception bias. These approaches are in line with researches that point out behavioral factors as one of the main drivers of financial decisions (Fraser, 2019).

Similarly, some scholars explain that economic explanations on financing decisions are undersocialized and incomplete. Shane and Cable (2002), for instance, draws upon organizational theory literature to show that social ties directly affect investor's decision to finance new ventures. In their research, the authors show that social networks work as a mechanism of information transfer through which information asymmetry is overcome in venture finance. Their findings suggest that investors exploit their social ties to gather private information, which allows entrepreneurs to obtain resources to pursue business opportunities.

In the next section, we create hypotheses about ESE and financial decisions based on these assumptions that traditional economic theories are undersocialized and that cognitive factors play a role in the entrepreneurial decision-making process.

3 Conceptual framework and hypotheses development

The entrepreneurial self-efficacy concept favors obtaining both types of external funds – equity and debt – from different sources of funds. In the case of information asymmetry, internal funds and external funds are not perfect substitutes (Stiglitz and Weiss, 1981). In a scenario of information asymmetry, internal financing seems like the cheapest funding option for

entrepreneurs. However, seeking external financing is linked to a higher need for resources for growth plans and a willingness of entrepreneurs to apply for it (Fraser, 2019). In this case, ESE multidimensional construct associates with behavioral and firm characteristics that can be either associated with higher access or even preference, for equity or debt. For this reason, we argue in the conceptual development that ESE assists entrepreneurs to obtain both types of funds: equity and debt.

In terms of debt financing, banks and debtholders are particularly concerned with entrepreneurs' ability to repay the loans. Given the small firms' opacity, banks fear the effects of adverse selection and moral hazard (Parker, 2002, 2003; Williamson, 1987). In this context, entrepreneurs must signalize their ability and commitment to repay the loans. To cope with these issues, the two lending technologies used by banks can be divided into transactional lending and relationship lending (Berger and Udell, 2002). Transactional lending is based on collecting *hard* data about the entrepreneur/firm, such as credit score or availability of collateral. Relationship lending relies on *soft* information about the entrepreneur's ability to repay the loans, which is gathered directly in the relationship between bank's managers and entrepreneurs. The two forms of lending technology associates with the behaviour and actions taken by entrepreneurs high in ESE. By doing so, entrepreneurs high in ESE can both decrease the costs of debt and increase the likelihood of successful applications.

Entrepreneurs high in ESE invest more personal wealth in their ventures (Cassar and Friedman, 2009). These additional assets can be converted into collateral whenever applying for bank debts and increase their access to credit. Besides, firms driven by entrepreneurs high in ESE present higher profitability in comparison to those with low ESE (Miao *et al.*, 2017). Correspondingly, more profitable entrepreneurs are more likely to post collateral and pay lower interest rates (Han *et al.*, 2009). Therefore, entrepreneurs high in ESE would be more likely to cope with transactional lending when applying for bank credits.

Regarding relationship lending, behavioral aspects related to entrepreneurial self-efficacy can positively signalize entrepreneur's engagement to cope with their loan obligations. First,

entrepreneurs high in ESE are those with a good relationship with investors (DeNoble *et al.*, 1999). A good relationship facilitates the transference of information. Second, banks demand a credible commitment of entrepreneurs when lending credits (Williamson, 1987). Entrepreneurs high in ESE present higher goal commitment and task effort that should be noticed in the relationship between bank managers and entrepreneurs (Trevelyan, 2011).

Accordingly, these findings support the argument that entrepreneurs high in ESE can decrease the costs of applying for bank debts. Moreover, entrepreneurs high in ESE would also emit positive signals to financial intermediaries and increase their likelihood of having successful applications. Therefore, we could expect that ESE will favor access to debt, making it a cheaper option for entrepreneurs high in ESE.

Similarly, entrepreneurs high in ESE might have better access to venture capitalists and business angels to obtain equity financing. Equity investors typically make investments in longer-term, un-quoted, hence less liquid, risk equity that promises high returns (Dimov *et al.*, 2007; Wright Robbie, 1998). In some circumstances, venture capitalists are the source with the least information asymmetry with entrepreneurs because of their ability to scrutinize firms that match with their portfolio preferences (Minola *et al.*, 2013). While much is discussed about selection effects on equity investors and business angels' choices, characteristics related to the entrepreneur might also affect this decision. In that sense, the entrepreneur's outcomes associated with ESE can be linked to equity investors' selection.

Venture capitalists do not invest equally in all types of firms, they look for specific industries, innovative firms, and with high growth potential (Gompers, 1995; Lee and Wahal, 2004; Zacharakis *et al.*, 2007). Accordingly, ESE has been associated with both a higher level of innovation and higher growth. Firms owned by entrepreneurs high in ESE present a higher growth rate (Baum and Locke, 2004; Hmieleski and Baron, 2008; Hmieleski and Corbett, 2008). Besides, entrepreneurs high in ESE present a high level of innovations (Ahlin *et al.*, 2014; Liang, 2019; Nag *et al.*, 2020), matching with VCs' preferred investment choices.

Some behavioral aspects linked to ESE can also match with VCs search. Entrepreneurs high in ESE not only perform better, but ESE relates to many entrepreneur's features that can increase their likelihood to obtain VCs investment. One study linked ESE to opportunity recognition (Tumasjan and Braun, 2012). Both VCs and entrepreneurs high in ESE likely know how to identify opportunities and markets with high growth potential, increasing their chances of cooperation to exploit the opportunity. Comparing to entrepreneurs who create independent-oriented firms, ESE has also a strong and positive link with growth-oriented entrepreneurial intentions (Douglas, 2013). Another study linked ESE to founders more passionate about inventing and developing firms (Cardon and Kirk, 2015). Moreover, entrepreneurs high in ESE have also a desire to introduce innovations into the market and create an innovative environment (DeNoble *et al.*, 1999). Finally, some authors linked ESE to planning activities, including the formalization of business plans (Brinckmann and Kim, 2015; Hechavarria *et al.*, 2012; McCann and Vroom, 2015). Such planning and techniques are more prevalent in VC-backed firms (Silvola, 2008).

Alongside venture capitalists, business angels (BAs henceforth) can be the source with the least information asymmetry with entrepreneurs in innovative environments (Minola *et al.*, 2013). Business angels also present a strong interest in investing in innovative and technology-based firms (Avdeitchikova *et al.*, 2008); and give more emphasis to business plans and financial information (Mason and Stark, 2004). Moreover, BAs were once successful entrepreneurs and demonstrate an Entrepreneurial Orientation (EO), which leads to an identification with entrepreneurs who want to grow and succeed (Lindsay, 2004; Ramadani, 2009). Therefore, BAs can also be the source with the least information asymmetry with entrepreneurs jointly with VCs.

For these reasons, VCs and BAs can be the source with the least information asymmetry with entrepreneurs. Thus, issuing equity can also be the cheaper and preferred choice for entrepreneurs high in ESE, favoring access to equity financing.

Therefore, with the aforementioned arguments, we create the two hypotheses regarding ESE and financial decisions. One hypothesis related to external financing proportion and a second one related to the source of financing:

H1 ESE is positively associated with external financing amounts.

H2 ESE increases the likelihood of obtaining funds from banks, venture capitalists, and business angels.

4 Methodology

4.1 Sample and data collection

We used a survey to collect data from French entrepreneurs. We first rely on the AMADEUS database to draw a sample of unlisted SMEs. The search strategy was based on the European Commission definition of SMEs, which is: (1) less than 250 employees; (2) turnover less or equal to €50 million or balance sheet less or equal to €43 million. We focused on independent firms, discarding those that belong to larger groups of firms and have a different dynamic from independent SMEs. Thus, we selected firms that have both no subsidiaries and are not integrated into any group. Finally, we only accessed firms with at least one available contact email. After setting these parameters, we extracted an initial list with 15.335 French firms.

In sequence, we used an email diffusion program to send automatic surveys to the mailing list. On the occasion, almost 27% of the emails returned or were considered non-existent. To ensure that our sample is represented by entrepreneurs, we asked some validation questions. First, to avoid having the questionnaire answered by employees, we asked on the email to answer the questionnaire only those who were at least (1) founders of the company or (2) one of the top managers. In this case, we ensured that we would only receive information about the entrepreneur. Second, not all information in AMADEUS is updated and many firms listed as SMEs are no

longer SMEs, having more than 250 employees or a turnover higher than €50 million. Therefore, we asked the annual turnover and number of employees to confirm that our sample of entrepreneurs belongs to SMEs indeed. We sent two waves of surveys. The first wave delivered 70 responses while the follow-up email two weeks later delivered more than 45 responses. In total, our sample consists of 114 observations using 2019 as the base year for the responses. It is worth noting that this number of observations is similar to previous studies on entrepreneurial self-efficacy and is consistent with the difficulties to observe cognitive attributes of entrepreneurs (Gudmundsson and Lechner, 2013; Hmieleski and Baron, 2008; Luthans and Ibrayeva, 2006; Nag *et al.*, 2020). In addition, no statistical differences were detected between the first and the second wave of surveys.

The sample consists of 95 male entrepreneurs and 19 females, with an average age of 53 years. Most entrepreneurs are well educated, with 86% of entrepreneurs having at least a Bachelor's degree (n = 99). The firms of the sample are mostly over 10 years old (n = 99), some firms are between 5 and 10 years old (n = 14), and one firm with less than 2 years old. Most firms have limited liability (n = 94) and about 18% of firms have unlimited liability (n = 20). In terms of employees, most firms have between 10 and 49 employees (n = 61), some firms have between 1 and 9 employees (n = 42), two firms reported no employees (n = 10), and few firms have between 50 and 249 employees (n = 9). Lastly, the industries range from production, commerce, and service (n = 71), information and communication technology (n = 23), construction (n = 8), medical cabinet (n = 3), research and development (n=3), while biotechnology, engineering, Energy and extraction, software, dairy industry and miscellaneous have just one firm each (n = 1)[8].

[8] Though the sample we use is small, it is in great part representative of French SMEs. The annual report of SMEs from *Observatoire des PMEs* and reports from the *Banque de* France show that more than 70% of entrepreneurs are men, relatively older with 25% of entrepreneurs with more than 60 years old, and high educated with only 16% of entrepreneurs without any diploma. French SMEs have, on average, 21 employees, almost half of the SMES have less than 5 years, making our sample relatively biased for older firms.

4.2 Measures

External financing. We ask participants to rate how they separate the long-term financing of their activities into three different groups: (1) self-financing (retained earnings), (2) social capital (share capital and share premiums), and (3) long-term debts (more than one-year debt)[9]. We use (2) as equity share and (3) as debt financing. We also sum up items (2) and (3) to measure the percentage of external funding and use (1) as the percentage of internal funding. Each one of the three groups of financing ranges between 0 and 100, the sum of the three groups always equals 100.

Source of financing. We enumerated a list of external funding sources and then asked participants to tell which ones they used to finance their activities: family, friends, business partners, government, angel investors, venture capitalists, university and other research centers, suppliers, and customers, banks and crowdfunding campaign. We follow Minola *et al.* (2013) and consider equity investors only the options venture capitalist and angel investor.

ESE. We use the instrument designed by DeNoble et al. (1999) to measure ESE. This instrument is largely used in entrepreneurship literature and shows good reliability (Hallak et al., 2015, 2012; Hmieleski and Corbett, 2008). The measure consists of 23 items that load into a 6-dimensional construct: (1) developing new product and market opportunities, (2) building an innovative environment, (3) initiating investor relationships, (4) defining core purpose, (5) coping with the unexpected, and (6) developing critical human resources. We asked participants to evaluate each item using a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree). The scores were summed to form an overall measure of entrepreneurial self-efficacy. This measure produced a Cronbach's coefficient alpha of 0,9 which is sound.

Control variables. The control measures include both entrepreneurial and firm information. We follow the literature on the firm's financing and growth to ask participants to inform their

[9] Long-term financing is more constant in time than short-term capital due to its nature that exceeds one year maturity. Short-term financing, on the other hand, forces entrepreneurs to roll over financing constantly, changing the composition of the financing.

age, gender, level of education, the number of employees of their firm, the legal status of the firm, and the industry type. *Entrepreneur's age* was measured with nine categories: (1) <25; (2) 25 to 29; (3) 30 to 34; (4) 35 to 39; (5) 40 to 44; (6) 45 to 49; (7) 50 to 54; (8) 55 to 59; and (9) >60. *Gender* was coded as female = 0 and male = 1. *Education* was measured in seven categories based on the French educational system, ranging from (1) primary school certificate only to (7) doctor's degree. *The firm's size* was measured using three categories of the number of employees: (1) 0 to 9 employees; (2) 10 to 49 employees; and (3) 50 to 249 employees. *The firm's age* was measured using three categories: (1) <2 years; (2) 2 to 5 years; (3) 6 to 10 years; and (4) >10 years. *Legal status* was measured by asking participants to inform whether their firm is a limited liability or not, limited liability was coded 1; 0, otherwise. Finally, we classified the *industries* of our sample following Gompers's (1995) classification of high-tech = 1 and low-tech = 0. The high-tech industries include communication, information technology, software and computers, electronics, and biotech firms. The low-tech includes medical services, energy, consumer products, industrial products, transportation, and services.

Table 1 presents all variables in this study as well as how these variables were created.

Table 1: Variable description

Variable	Description
Subjective performance	Numerical variable with 3 items measured with 7-point Likert-type scale, (1 = strongly disagree, 7 = strongly agree).
Turnover growth	Numerical variable reporting the turnover growth, or shrinkage.
Entrepreneur's age	Numerical variable indicating the entrepreneur's age.
Legal status	Binary variable indicating 1 if limited liability, zero otherwise.
Gender (male)	Binary question indicating 1 if male entrepreneurs, zero otherwise.
Firm's age	Numerical variable indicating the number of years of the company.
External financing	The proportion of external financing obtained by the entrepreneur, measured as the sum of outside debt and outside equity.
ESE	Numerical variable with 21 items measured with 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree).
Outside Debt	The proportion of outside debt financing obtained by the entrepreneur.
Outside Equity	The proportion of outside equity financing obtained by the entrepreneur.
Tech industry	Binary variable indicating 1 if the firm belongs to any of the following categories: communication, information technology, software and computers, electronics, and biotech firms.
VC/BA	Binary variable indicating 1 if reported having VC or BA as a source of financing, zero otherwise.
Banks	Binary variable indicating 1 if reported having banks as a source of financing, zero otherwise.
Education	Categorical variable with 7 levels concerning the French educational system, ranging from (1) primary school certificate only to (7) doctor's degree.
Employees	Numerical variable indicating the firm's size in terms of employees. There are three categories: (1) 0 to 9 employees, (2) 10 to 49 employees, and (3) 50 to 249 employees.

4.3 Statistical procedures

The hypotheses related to financing decisions are tested using Tobit regressions. Many firms in our sample reported a great number of *zeros* for outside equity financing or debt financing, representing a stronger reliance on internal financing. For this nature of the dependent variables with zero inflation, the Tobit models are most suitable for the analysis. We also use probit models to check the likelihood of having VC/BAs investment or bank's credits as the source of financing.

Finally, we run some additional models for robustness check. For the robustness check, we change the Tobit regressions for OLS regressions to check whether the results change using a different estimation procedure.

5 Results

5.1 Main results

Given the small sample size, we take some extra caution with some previous analyses before conducting the models. We investigate multicollinearity measuring variation inflation score (VIF) and condition index score. The highest VIF is 2.48 and the highest condition index score is 9.2. Each falling into the acceptable ranges showing that multicollinearity is not an issue in the data sample. Furthermore, we measure the leverage values for potential outliers in the sample. Again, the highest leverage value was 0.6 – way below the threshold of 2. Finally, we mean-centered all variables before running the models.

Table 2 presents the descriptive statistics with mean, standard deviation, and bivariate correlation of all the variables we use in the models.

Table 2: Descriptive statistics with mean, standard deviation, and bivariate correlations (Pearson)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Subjective Performance	3.830	1.400	1													
2. Turnover Growth	6.847	20.581	0.485***	1												
3. Entrepreneur's age	53.596	9.627	-0.113	-0.08	1											
4. Gender (male)	0.833	0.374	0.259**	0.226**	0.069	1										
5 Legal status (limited)	0.824	0.382	-0.237**	-0.17**	0.047	-0.124	1									
6. Firm's age	1.131	0.339	-0.019	0.111	-0.022	0.074	0.096	1								
7. External financing	36.271	39.207	-0.26**	-0.158	-0.158	-0.127	-0.164	0.009	1							
8. ESE	5.117	0.728	0.116	0.168*	0.099	0.2**	-0.045	0.12	0.191**	1						
9. Outside Debt	22.894	31.008	-0.091	-0.157	-0.204**	-0.231**	-0.143	-0.105	0.794***	0.088	1					
10. Outside Equity	13.377	23.391	-0.31***	-0.056	0.003	0.088	-0.085	0.151	0.621***	0.2**	0.015	1				
11. Industry	0.28	0.451	0.16**	0.202	-0.059	0.214**	-0.02	0.259**	-0.209**	0.224**	-0.255**	-0.015	1			
12. VC/BA	0.07	0.256	-0.321***	0.035	0.15	-0.081	-0.055	0.004	0.355***	0.217**	0.147	0.395***	0.049	1		
13. Education	5.00	1.30	0.119	0.067	-0.037	0.034	-0.099	0.135*	0.033	0.146	-0.071	0.146	0.226**	0.058	1	
14. Firm's size	1.692	0.611	-0.002	-0.004	-0.146	0.142	-0.107	-0.055	0.226***	0.25***	0.231***	0.075	0.22**	0.2**	0.135	1

Table 2 shows that entrepreneurs have on average 22.9% of debt financing and 13.38% of outside equity. The remaining financing corresponds to internal financing. The descriptive analysis, at first glance, supports the POT when there are no controls. Turnover growth is, on average, 6.85 and has a standard deviation of 20.58. This great dispersion contrasts with subjective performance that is 3.83 on average and has a standard deviation of 1.4.

Table 3 shows the Tobit and Probit models. The three first columns are left-censored Tobit models using the proportion of each type of financing as the dependent variable. The two last columns are Probit models using the binary variable of two types of sources of financing, VC/BAs and banks. The variable of interest (ESE) lies in the first row and the controls are included.

Table 3: Determinants of having external funding, equity, debt, and the source of financing

	Dependent variable:				
	Tobit (share of outside equity)	Tobit (share of long-term debt)	Tobit (share of external funding)	Probit (having VC/BA = 1)	Probit (having bank = 1)
	(1)	(2)	(3)	(4)	(5)
ESE	13.416**	14.421**	18.910***	0.762*	0.263
	(6.684)	(7.063)	(7.275)	(0.412)	(0.191)
Gender (male)	16.405	-21.384*	-11.716	-1.272*	-0.178
	(13.204)	(12.913)	(13.620)	(0.651)	(0.352)
Entrepreneur's age	0.071	-0.951*	-0.597	0.066*	-0.024*
	(0.479)	(0.522)	(0.523)	(0.034)	(0.014)
Education	4.003	-0.970	1.972	-0.061	0.064
	(3.685)	(3.815)	(3.965)	(0.181)	(0.107)
Firm's size	2.065	25.926***	22.027***	0.985**	-0.015
	(7.570)	(8.374)	(8.505)	(0.481)	(0.226)
Firm's age	18.016	-2.352	11.235	0.364	0.240
	(13.038)	(15.695)	(15.340)	(0.727)	(0.401)
Legal Status (limited)	-3.608	-17.439	-16.505	-0.729	-0.789**
	(11.681)	(12.081)	(12.691)	(0.557)	(0.330)
Tech Industries	-16.185	-44.099***	-40.298***	0.358	-0.622*
	(10.490)	(12.484)	(11.981)	(0.494)	(0.329)
Intercept	-16166	46.792***	56.778***	-0.682	0.411
	(16.329)	(15.768)	(16.638)	(0.658)	(0.426)
Observations	114	114	114	114	114
Log Likelihood	-292.706	-327.655	-419.334	-20.707	-64.078
Akaike Inf. Crit.	605.412	675.309	858.669	59.414	146.155

*Note: The table reports the average marginal effects of Tobit and Probit regressions. The dependent variables of the two first models measure the share of financing of Equity and debt. The third model measures the sum of external equity and debt. The two last models are non-linear models measuring the source of finance that assumes a value of 1 or 0. The standard deviations are presented in parentheses. ***, ** and * Significant at the 1%, 5% and 10% levels, respectively.*

Thus, the first and second models show that ESE positively associates with outside equity ($p < 0.05$) and debt ($p < 0.05$), with a slightly higher amount of debt ($\beta = 14.421$). The third model shows that ESE is highly significant for external financing ($p < 0.01$), supporting H1.

Models 4 and 5 show that ESE is positive and significantly associate with VC/BAs source of financing ($p < 0.10$) – but not with banks ($p < N.S.$). Thus, the data partially support H2, related to VC/BAs. Therefore, entrepreneurs high in ESE are more likely to have VC/BAs financing and even a higher share of outside equity in their ventures. Yet entrepreneurs low in ESE and high in ESE have both access to bank financing (model 5), befitting the notion that banks remain the easiest source of financing for entrepreneurs in general.

Some non-hypothesized results are worth noting. A firm's size predicts outside financing ($p < 0.01$), mostly debt, which is in accordance with the growth lifecycle of firms (Berger and Udell, 1998). Larger firms have more access to credit and other sources of financing. Tech industries are negatively related to debt and mostly rely on internal financing ($p < 0.01$). Tech firms have more intangible assets and less collateral to obtain bank credits. Nonetheless, tech firms do not have a higher likelihood to obtain VC/BAs, contrasting with the literature of equity investment (Gompers, 1995; Minola *et al.*, 2013; Rosenbusch *et al.*, 2013).

Next, we conduct robustness tests to check whether these results hold when we change two variables. First, we change the independent variable and, second, we change the interaction term.

5.2 Robustness check

Table 4 shows the robustness check analysis employing OLS instead of Tobit. Thus, we run three OLS models, one for each type of external financing.

Table 4: Determinants of having external funding, equity, and debt using OLS

	Dependent variable:		
	Outside Equity	Outside Debt	External funding
	(1)	(2)	(3)
ESE	6.376*	7.404*	13.780***
	(3.227)	(3864)	(4.994)
Gender (male)	5.125	-17.600**	-12.475
	(6.090)	(7.292)	(9.425)
Entrepreneur's age	-0.032	-0.499*	-0.531
	(0.232)	(0.277)	(0.359)
Education	1.895	-1.564	0.331
	(1.744)	(2.089)	(2.700)
Firm's size (employees)	1.048	14.744***	15.792***
	(3.861)	(4.623)	(5.975)
Firm's age	9.701	1.107	10.809
	(6.797)	(8.138)	(10.518)
Legal Status (limited)	-3.976	-8.138	-12.114
	(5.810)	(6.957)	(8.992)
Tech Industries	-6.636	-20.377***	-27.013***
	(5.291)	(6.335)	(8.188)
Intercept	12.971*	49.845***	62.816***
	(7.456)	(8.928)	(11.540)
Observations	114	114	114
R^2	0.097	0.263	0.230
Adjusted R^2	0.028	0.207	0.172
Residual Std. Error (df = 105)	23.058	27.608	35.684
F Statistic (df = 8; 105)	1.412	4.694***	3.928***

*Note: The table reports the average marginal effects of OLS regressions. The dependent variables of the two first models measure the share of financing of Equity and debt. The third model measures the sum of external equity and debt. The standard deviations are presented in parentheses. ***, ** and * Significant at the 1%, 5% and 10% levels, respectively.*

Table 4 shows that ESE remains significant in each model using the OLS estimator, showing the robustness of the results reported in Table 3. The first model shows ESE significant and positively affecting outside equity ($\beta = 6.376, p < 0.10$). For outside debt, model 2, ESE

is also significant at $p < 0.10$ ($\beta = 7.404$). In model 3, ESE is significant and highly significant ($\beta = 13.780, p < 0.01$).

6 Discussion

We found two results in our analysis. First, the data shows that entrepreneurs high in ESE obtain more external financing, confirming hypothesis H1. Second, when we analyze both equity and debt separately, we find that ESE positively affects both types of financing. The same pattern is observed in the OLS robustness check (Table 4). In terms of financing sources, ESE positively associates with VC/BAs sources, but not with banks, partially supporting H2.

From a theoretical perspective, the findings support the statements that economic explanations for financial decisions are undersocialized and incomplete. Entrepreneurial self-efficacy seems to impact entrepreneur's financial decisions and funding access to SMEs. In practical terms, we add to the multilevel perspective of SME's funding gap by analyzing cognitive constructs that can improve entrepreneur's access to finance.

In addition, we provide some evidence that ESE can affect the choice of venture capitalists and business angels. One of the most striking discussions in VC and BA literature is the non-random assignment of the investors, who normally choose the most prosperous business to invest in. While a large focus is given to firm and industry characteristics (Rosenbusch *et al.*, 2013), our results suggest that the entrepreneur's cognitive characteristics can also play a role in this financial assignment of investors. Investors may not only identify the most promising businesses but possibly some characteristics related to latent factors linked to good performance. The results hold even when we control for education level that is normally associated with human capital.

Another distinctive characteristic of our results is the ESE relationship with debt and bank source (model 2 and 5, Table 3). Entrepreneurs high in ESE obtain more debt than entrepreneurs low in ESE. This result should reflect both a higher potential to obtain bank's credits and a higher demand, though we cannot separate which effect is stronger to explain this higher achievement

of debt. Still, ESE does not increase the likelihood of having bank financing, meaning that even entrepreneurs low in ESE have at least some access to the bank. This evidence is in line with the high banking development in continental Europe.

7 Final remarks

In this study, we used Organizational theory and ESE literature (Newman *et al.*, 2019; Shane and Cable, 2002) to check how ESE relates to financial decisions. ESE is known for improving the relationship between investors and entrepreneurs that could decrease issues related to information asymmetry. To date, there was little evidence analyzing ESE and firm's financial decisions and we aimed to contribute with this literature. Thus, we answered how ESE can affect economic theories such as pecking order theory.

Overall, through two different frameworks, POT, and reverse POT, we find entrepreneurs high in ESE raise both more equity and debt than entrepreneurs low in ESE. ESE is also related to VC/BAs source of financing. Nonetheless, entrepreneurs high in ESE are not more likely to use bank financing than entrepreneurs low in ESE, though ESE increases the amount of bank debt. Thus, all entrepreneurs have at least some access to bank credits, though entrepreneurs high in ESE raise more external debt – which can be explained by their growth ambitions and relationship lending.

Some implications can be drawn from this study. Policymakers interested in assisting entrepreneurs to develop their ventures can benefit from the results of this study. It is possible to alleviate the financial constraints of SMEs with a focus on entrepreneurial education rather than firm-level dimensions. For instance, ESE is a construct that can be developed through training and education (Newman et al., 2019), which makes ESE a valuable cognitive tool for entrepreneurs.

Nonetheless, some questions persist for future research. First, future research could analyze how entrepreneurs high in ESE relates to venture capitalists and debtholders in terms of performance. Second, we still lack investigations on ESE and financial decisions. ESE positively links with external financing, future research could investigate if ESE decreases borrowing discouragement or control aversion, for instance (Cressy, 1995; Fraser, 2019; Kon and Storey, 2003).

This research has several limitations. First, the data collection method of email surveys can have selection bias. Second, our sample is overly represented of older firms (Table 1), possibly having survival bias as well. Financial constraints affect younger firms more severely than older firms (Berger and Udell, 1998). Third, we look at cross-section data while financial decisions, and possibly ESE, changes over time (McGee and Peterson, 2019).

Our findings address the access the funding gap problem in SMEs, as we exposed earlier. Economic theories are often incomplete to properly address the financing in SMEs (Shane and Cable, 2002), thus we base our theoretical approach on the renewed interest to study cognitive factors and financial decisions (Fraser, 2019). We also answer the call to analyze ESE in the context of organizational theory (Newman *et al.*, 2019).

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Appendices

Appendix 2A

Questionnaire

Q1: Êtes-vous le fondateur ou l'un des fondateurs de votre entreprise?

A1: Oui

A2: Non

Q2: Êtes-vous le fondateur ou l'un des fondateurs de votre entreprise?

A1: Oui

A2: Non

Q3: Depuis combien de temps votre entreprise est-elle enregistrée?

A1: Moins de 2 ans

A2: 2 ans ou plus mais moins de 5 ans

A3: 5 ans ou plus mais moins de 10 ans

A4: Plus de 10 ans

Q3: Combien d'employés à temps plein travaillaient dans votre entreprise à la fin de 2019?

A1: Aucun employé

A2: De 1 employé à 9 employés

A3: De 10 employés à 49 employés

A4: De 50 employés à 249 employés

A5: Plus de 250 employés

Q4: Quel est le chiffre d'affaires de votre entreprise en 2019?

A1: Jusqu'à € 2 millions

A2: Plus de € 2 millions et jusqu'à € 10 millions

A3: Plus de € 10 millions et jusqu'à € 50 millions

A4: Plus de € 50 millions

Q5: Votre entreprise est-elle à responsabilité limitée?

A1: Oui

A2: Non

Q6: Dans quelle secteur votre entreprise opère-t-elle?

A1: Agriculture, Pêche et Foresterie

A2: Technologies de l'Information et des Communications

A2: Secteur digital et logiciel

A3: bâtiment

A4: Education et recherche

A5: biotechnologie

A6: Santé

A7: Énergie et Extractifs

A8: Production, commerce et service

A9: Eau, Assainissement et Gestion des Déchets

A10: Transport

A11: Secteur Financier

A12: Protection Sociale

A13: Administration Publique

A14: Autre

Q7: Je vais énumérer plusieurs sources de financement extérieur. Pourriez-vous indiquer si vous avez reçu des fonds de l'une de ces sources ?

A1: Famille

A2: Ami(e)s

A3: Partenaires d'affaires

A4: Gouvernement fédéral, provincial ou municipal

A5: Investisseurs providentiels

A6: Spécialiste du capital risque

A7: Université ou autre centre de recherche

A8: Fournisseur ou client

A9: Banques

A10: Autre

Q8: Quelle est la répartition en pourcentage de votre finanement à long terme entre ces trois sources?

A1: Réserves et résultat de l'exercice

A2: capital social et primes d'emissions

A3: Dettes à plus d'un an

Q9: ESE - Les questions suivantes visent à analyser certaines caractéristiques personnelles. Êtes-vous d'accord, en désaccord ou ni en accord ni en désaccord avec les affirmations suivantes? (Evaluez : 1 – Tout à fait d'accord, 7 – Pas du tout d'accord)

Je peux voir de nouvelles opportunités de marché pour de nouveaux produits et services.

Je peux découvrir de nouvelles façons d'améliorer les produits existants.

Je peux identifier de nouveaux domaines de croissance potentielle.

Je peux concevoir des produits qui résolvent les problèmes actuels.

Je peux créer des produits qui répondent aux besoins non satisfaits des clients.

Je peux mettre des concepts de produits sur le marché en temps opportun

Je peux déterminer à quoi ressemblera l'entreprise

Je peux créer un environnement de travail qui permet aux gens d'être plus leur propre patron.

Je peux développer un environnement de travail qui encourage les gens à essayer quelque chose de nouveau.

Je peux encourager les gens à prendre des initiatives et à prendre des responsabilités pour leurs idées et leurs décisions, quel que soit le résultat.

Je peux former des relations de partenaire ou d'alliance avec d'autres.

Je peux développer et entretenir des relations favorables avec des investisseurs potentiels.

Je peux développer des relations avec des personnes clés connectées à des sources de capitaux.

Je peux identifier des sources potentielles de financement pour l'investissement

Je peux exprimer la vision et les valeurs de l'organisation

Je peux inspirer les autres à adopter la vision et les valeurs de l'entreprise.

Je peux formuler un ensemble d'actions à la recherche d'opportunités.

Je peux travailler de manière productive sous un stress, une pression et un conflit continus.

Je peux tolérer des changements inattendus dans les conditions commerciales

Je peux persister face à l'adversité

Je peux recruter et former des employés clés.

Je peux développer des plans d'urgence pour combler le personnel technique clé

Je peux identifier et construire des équipes de gestion.

Q10: Quelle est votre genre?

A1: Masculin

A2: Féminin

A3: Autre

Q11: Quel âge avez-vous?

A1: Moins de 25 ans

A2: Entre 25 et 29

A3: Entre 30 et 34

A4: Entre 35 et 39

A5: Entre 40 et 44

A6: Entre 45 et 49

A7: Entre 50 et 54

A8: Entre 55 et 59

A9: Plus de 60 ans

Q12: Quel est le plus haut diplôme que vous ayez obtenu ?

A1: Certificat d'études primaires, aucun diplôme

A2: Brevet des collèges, BEPC

A3: CAP, BEP ou diplôme de même niveau

A4: Baccalaureat general, technologique, professionnel ou équivalent

A5: Diplôme du 1er cycle universitaire, BTS, DUT, ou équivalent, niveau BAC+2

A6: Diplôme de 2ème cycle universitaire

A7: Diplôme de 3ème cycle universitaire, doctorat, grande école, ingénieur

Chapter 3 - Confidence and discouraged borrowers: how entrepreneur's perception affects discouragement

Access to credit for small firms and entrepreneurs has always been a public policy concern. While a large part of past research has focused on analyzing how to decrease the rejection rate of small firms in credit applications, some studies have found a large number of entrepreneurs who do not apply for credit because they feel discouraged. That is, entrepreneurs, do not even apply for credits because they perceive low chances of obtaining these credits. The present study analyses cognitive factors that can affect this perception that could explain discouragement. Specifically, we analyze the effects of dispositional optimism, overconfidence (miscalibration), and entrepreneurial self-efficacy (ESE) on discouragement. While optimistic entrepreneurs are less likely to feel discouraged, miscalibrated entrepreneurs are positively associated with discouragement. There was no significant result for ESE. These results bring new insights to the literature that investigates factors that cause discouragement in entrepreneurs, as well as implications for policymakers.

Keywords: entrepreneurship, cognition, borrower discouragement, overconfidence, dispositional optimism, entrepreneurial self-efficacy.

JEL Codes: L26, D91, G21

1 Introduction

Economists have long wondered how to increase the access to credit for small and medium-sized firms (SMEs). While purely economic explanations for venture financing structure are often incomplete (Shane & Cable, 2002), insights from cognitive and behavioral finance largely account for some of the remaining variations in entrepreneur's financing decisions (Fraser, 2019). Recent approaches emphasizing the demand side of the credit market after the Global Financial Crisis (GFC) suggest that at least 4% of the entire SME population simply decide not to apply for credits[10]. This is critical once the same estimative suggests that 63% of the non-applicants could be eligible to receive credits if they had applied for it. Overall, these voluntary non-applicants are called *discouraged borrowers*.

Still, the literature has not yet fully investigated the cognitive antecedents that lead to discouragement. Some progress has been made in analyzing institutional and environmental characteristics that affect information transparency (Chakravarty & Xiang, 2013; Statnik, 2020). Yet, the entrepreneur's decision-making process is largely affected by cognitive variables that impact financial decisions. For instance, entrepreneurial overconfidence makes self-selection an ineffective contractual mechanism as it increases risk-taking (Shane & Cable, 2002). In addition, overconfident individuals are overly represented in entrepreneurship in comparison to other groups (Astebro et al., 2014; Busenitz & Barney, 1997). Similarly, optimism can inflate the entrepreneurial demand for financing even in cases of unviable ventures (Fraser, 2019). Could these same cognitive factors affect the decision to apply for bank credits?

In this paper, we propose to empirically test three cognitive factors related to entrepreneurial confidence that can affect discouragement. We select three cognitive factors associated with to entrepreneur's confidence in financial decisions: overconfidence (miscalibration), dispositional optimism, and entrepreneurial self-efficacy (ESE) (Chen et al.,

[10] See Fraser (2014) and Cowling et al. (2016) for a discussion about discouraged borrowers during the GFC.

1998; Moore & Healy, 2008; Scheier et al., 2001). Then we use Fraser's (2014) theoretical approach to drawing three hypotheses – one for each cognitive factor. We test each one of them in a survey of French entrepreneurs who answered our questionnaire. In total, the sample consists of 158 observations with personal and firm information as well as cognitive information.

The results show that some cognitive variables have a significant effect on discouragement. We find positive effects of dispositional optimism on discouragement and negative effects of miscalibration on discouragement. ESE, nonetheless, is not significantly related to discouragement. We discuss the results in terms of cognitive components in financial decisions, and SMEs' access to credit.

The contributions of this study are twofold. First, we answer the call to investigate cognitive factors that potentially explain an entrepreneur's financial decisions (Fraser, 2019; Fraser et al., 2015). In this case, we analyze the relationship between three cognitive factors with discouragement. Thus, we contribute to entrepreneurial finance literature by checking factors that associate with SMEs ' access to credit and that potentially inhibit the growth of SMEs (Canton et al., 2013; Du & Nguyen, 2021). Second, the evidence obtained in this study should guide future research in a firm's access to credit. We provide substantial information that can contribute to the ongoing efforts in developing theoretical models that associate individual-level variables (e.g., overconfidence, optimism, ESE) with firm-level variables (e.g., financial structure, firm performance). Thus, we propose a future agenda based on the main findings of this study and discuss the limitations of our approach.

The remainder of this paper is structured as follows. The second section refers to the literature review. Section 3 proceeds to hypotheses development and section 4 describe the methodology. Section 5 presents the results and section 6 discusses the results. Finally, section 7 presents the concluding remarks with limitations and directions for future research.

2 Literature review

Recently, a new stream of research started to investigate issues related to information asymmetries on the demand side of the credit market (Du & Nguyen, 2021; Fraser, 2019). Scholars noticed that, in many cases, entrepreneurs need external funds but do not ask for them because they feel discouraged (Chakravarty & Xiang, 2013; Fraser, 2019; Freel et al., 2012; Gama et al., 2017; Kon & Storey, 2003; Mac an Bhaird et al., 2016; Neville et al., 2018; Rostamkalaei et al., 2020). In this case, entrepreneurs think that applying for credits does not worth the application costs because they perceive low chances of obtaining them (Fraser, 2014). These new findings contested the classical view that all financially constrained firms are represented in rejection rate data, alongside bad firms, as many firms do not even apply for credits. In other words, there is a "latent demand" for credit that does not appear on the bank's screening records. The figure below exposes all possible cases of firms in the credit markets, including the discouraged borrowers:

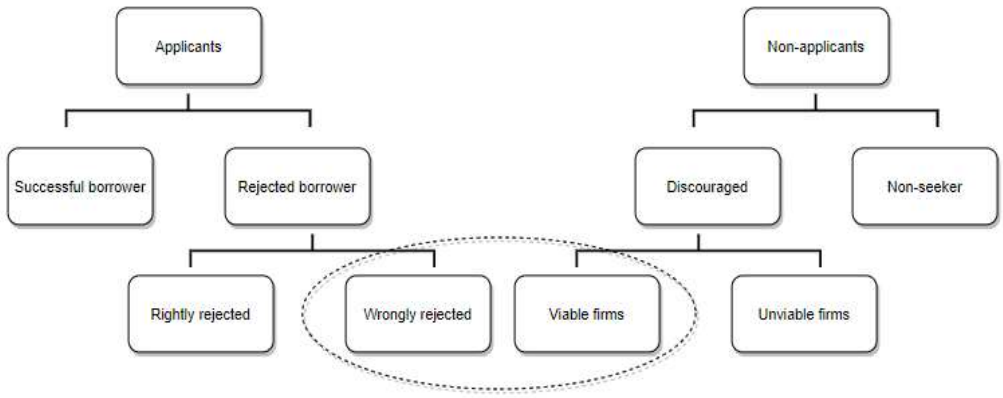

Figure 1: The diagram summarizes all possible cases of firms in the credit market. Those circulated in the dashed line represent the real funding gap for SMEs.

Theoretically, discouraged borrowers are a direct consequence of credit market failures (Fraser et al., 2015). In short, discouragement occurs because the credit market is characterized by the presence of asymmetries of information (Stiglitz & Weiss, 1981). If the credit market were perfect, there would be no credit rationing for SMEs and good ventures would receive funds in case of need. However, in the presence of information asymmetry, banks can mistakenly lend credits for bad firms and leave good firms without sufficient credit. As consequence, the result is an increase in the SMEs funding gap, the difference between the demand of supply of funds for SMEs (Levenson & Willard, 2000; Udell, 2015). Thereby, given these information issues, many entrepreneurs decide not even trying to apply. The perception of rejection is what drives discouragement in entrepreneurship (Fraser, 2019); in this case, entrepreneurs decide to avoid wasting their time, money, and effort in applications if they perceive low chances of obtaining credits.

Discouragement attracted many scholars in the last two decades. While developing the causes of credit rationing in SMEs, scholars noticed that part of the funding gaps originates in the demand side of the credit market. Levenson and Willard (2000), for example, noted that more firms report discouragement than report bank rejection. The first theoretical framework of discouragement appeared right after the first development of discouraged borrowers in the literature. Kon and Storey (2003) seminal article inaugurated the theoretical foundation of discouraged borrowers in literature, more recently Fraser (2014) adapted the model to include concepts of behavioral finance.

In understanding who the discouraged borrowers are, some scholars develop the theoretical background following Kon and Storey's (2003) model and concepts (e.g. Neville et al., 2018). Kon and Storey's (2003) 'classical' foundation of discouragement is based on the rational behavior of entrepreneurs. Recently, however, Fraser (2014) added some important components from behavioral entrepreneurship literature and developed a theoretical model that includes irrationality to discouragement modeling. In this model, Kon and Storey's (2003) model emerges as a special case when there are only the good firm and the bad firm in the market. In

Fraser's (2014) adaptation, cognitive mechanisms play a role in discouragement as entrepreneurial perceptions affect the decision to apply for funds. Thus, instead of rationality, the entrepreneur's borrowing decisions can be subject to cognitive factors related to entrepreneurial decision-making (Grégoire et al., 2011; Shepherd et al., 2015).

2.2 Fraser's model

In Fraser's (2014) approach, two main thresholds are predicting three groups of borrowing decision groups. A first threshold θ_0 separates business with credit demands ($\theta \geq \theta_0$) – i.e. firms with a non-negative net marginal return from borrowing – from those without credit demands ($\theta < \theta_0$) (non-seekers). This ability/productivity threshold location depends on the amount of capital invested and interest rate. Below the threshold, entrepreneurs do not benefit from additional credits and, therefore, do not apply for credits. Above this threshold, entrepreneurs benefit from additional credit and have credit demands.

However, credit applications are costly due to information issues. Given this context, perceptions of the probability of credit application approval are relevant for the decision to apply. Thus, conditional to credit needs ($\theta \geq \theta_0$), a perceived application success threshold with a negative slope (ω_0) separate discouraged borrowers from seekers. This curve is represented by ω_0 is defined by the perceived costs of applications (or "hurdles"). The negative slope of ω_0 is justified by higher ability/productivity that increases the net marginal return from borrowing. Thus, as the perception of success matters in this model and applications are costly, entrepreneurs who perceive low chances of success will fall below the threshold ($\omega^* < \omega_0$) whereas entrepreneurs who perceive high chances of success will fall above the threshold ($\omega^* \geq \omega_0$).

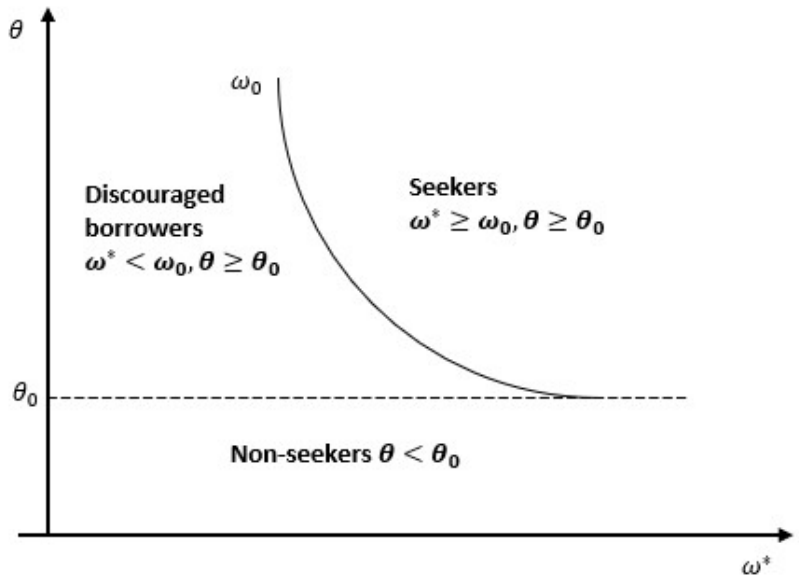

Figure 2: the representation of Fraser's model on discouraged borrowers. The θ represents the productivity ("entrepreneurial ability") and θ_0 separates those entrepreneurs who would benefit from having additional credits from those who would not. The parameter ω^* represents the perceived probability of successful application, that is ω^*, while ω_0 are the perceived costs of the application.

According to Fraser (2014), the specification of the perceived probability of success (ω^*) is a function that depends on two parameters, the aforementioned true probability of success (ω) and a cognitive component (say, α) that deviates the *true* probability of success from the *perceived* probability of success. That is, $\omega^* = f(\omega, \alpha)$ where the argument α can assume positive or negative values and increase or decrease the value of ω^*, causing either $\omega^* \geq \omega$ or $\omega^* < \omega$. Empirically, Fraser's (2014) shows that is possible to identify ω^* and estimate it using a linear approximation $\omega^* = \omega + \alpha$.

3 Hypothesis development

3.1 Overconfidence (miscalibration) and discouragement

Overconfidence remains one of the most studied cognitive biases in entrepreneurship since the seminal article from Cooper et al. (1988). Part of this increased interest in the cognitive bias comes from individual and contextual factors that make entrepreneurs more overconfident than other populations (Busenitz and Barney, 1997; Forbes, 2005). Another part of the interest comes from the effects of overconfidence on SME outcomes, which goes from excessive entry to investment decisions (Astebro et al., 2014, 2007; Friedman, 2007). Indeed, after decades of research, scholars show that overconfidence is highly related to entrepreneurial activity (Astebro et al., 2014; Zhang and Cueto, 2017).

Overconfidence is a heterogeneous concept that manifests itself in three different forms: overestimation, overplacement (also called *better-than-average* effect), and miscalibration (or overprecision) (Moore and Healy, 2008). The first form refers to the tendency to overestimate one's actual ability, performance, and the chance of success. The second form refers to "overplacement of one's performance relative to others". It occurs when decision-makers believe they are better than the median population. Lastly, miscalibration relates to the tendency to overestimate the precision of one's knowledge.

This research analyses only the third form of overconfidence (miscalibration). Miscalibration has a complex relationship with entrepreneurial decisions (Bernoster et al., 2018; Parker, 2018) and many of the effects of miscalibration on entrepreneurial decisions are still unknown (Astebro et al., 2014). Different from the other two forms of overconfidence, miscalibration makes individuals overestimate the precision of their knowledge. That is, we could expect from the two first forms of overconfidence, overestimation, and overplacement, an overestimation to positive outcomes in terms of frequency (Heaton, 2002; Malmendier and Tate, 2005). Statistically, both attitudes would lead to an overestimation of the prospect of expected returns. However, miscalibration relates to an underestimation of the degree of variation in possible outcomes rather

than an optimistic prediction of an expected outcome. Thus, miscalibration relates rather to the outcome's variance. That is, a miscalibrated entrepreneur modifies the probabilities associated with the outcomes by giving excessive weight on private signals in order to decrease its variance (Malmendier and Tate, 2005; Nosić and Weber, 2010). If it leads to an overestimation of the prospect of expected returns or not will depend on how a miscalibrated individual modifies the probability distribution of the expected outcomes. In other words, a miscalibrated individual may have optimistic or pessimistic expectations if the subjective modified probabilities lead to an increase or decrease in the expected return, respectively.

Assuming the specification from Fraser's model, borrowing success is the outcome variable Y. The probability of borrowing success ω is unknown and entrepreneurs base their decision on the *perception* of the true probability of borrowing success ω^*. Miscalibrated entrepreneurs, nonetheless, modify the subjective probability in a way to decrease its variance. Two different scenarios are drawn from miscalibration specification: first, entrepreneurs will have an optimistic perception if $E_*(Y) = \omega^* > \omega = E(Y)$. Thus, α, the cognitive component of miscalibration, will assume a positive value making $\omega^* > \omega$. Similarly, entrepreneurs will have a pessimistic perception if $E_*(Y) = \omega^* < \omega = E(Y)$, where, in this case, α will assume a negative value, making $\omega^* < \omega$.

Both theoretical specifications are coherent with overconfidence literature, which leads us to create two opposing hypotheses regarding discouragement. That is, we create a pessimistic and an optimistic hypothesis for miscalibration. First, if entrepreneurs *perceive* low chances of borrowing success when they apply for credits, the entrepreneurs will be pessimistic and discouraged to apply. Second, if entrepreneurs *perceive* high chances of borrowing success, in this case, they will be optimistic and less affected by discouragement. As we showed before, miscalibration does not act by making entrepreneurs only expect positive or negative results. Miscalibration affects entrepreneurs by decreasing the variance of possible outcomes, reinforcing their initial assumptions. Therefore, miscalibrated entrepreneurs with initial negative assumptions regarding borrowing application will overestimate the precision of their assumption and become

"sure" of rejection, and be discouraged to apply. Likewise, miscalibrated entrepreneurs with initial positive assumptions will have their initial assumptions reinforced by miscalibration and more likely to believe in the credit approval, decreasing discouragement.

The pessimistic hypothesis finds support in the fact that many entrepreneurs are usually aware of the difficulties for SMEs to obtain credits, which can make entrepreneurs perceive banks as less likely to lend them credits. Indeed, small firms' credit market is imperfect with information asymmetries (Stiglitz and Weiss, 1981), and SMEs face a large denial rate whenever applying for bank loans (Ferrando et al., 2017; Holton et al., 2013). Not only there is a recognized *actual* funding gap in the credit market that leaves many SMEs without external funding, but entrepreneurs also *perceive* a great difficulty in accessing external finance (Ferrando and Mulier, 2015; Moscalu et al., 2020). Fraser's (2014) model argues that part of discouragement may be irrational in the sense that entrepreneurs may misperceive the true likelihood of their credit applications approval. Therefore, perceived difficulties to access external finance should be reinforced by miscalibrated entrepreneurs that misperceive their chances of raising external capital. Entrepreneurs subject to miscalibration might think that is not even worth trying to access the bank's loan because they are "sure" their borrowing demand will be denied. Thus, in case of a negative view of their chances of obtaining credits, miscalibrated entrepreneurs might perceive their chances of achieving credits lower than application costs to even bother trying a loan application ($\alpha < 0, \omega^* < \omega_0$). Therefore, miscalibration will increase discouragement for entrepreneurs. Then, we create the first hypothesis regarding miscalibration and entrepreneur's pessimistic view:

H1a: miscalibration will have a positive effect on discouragement.

We now consider the opposing hypothesis. Though entrepreneurs are generally aware of the difficult conditions SMEs face in dealing with credit markets, miscalibration can make

entrepreneurs ignore "social signs" and act on their own (Adomdza et al., 2016; Koellinger et al., 2007). Instead, miscalibration can make entrepreneurs base their decisions only on their private information, ignoring peers that could be making decisions in the opposite direction. In that case, miscalibrated entrepreneurs can, possibly, ignore all signals of credit difficulties and become "sure" that they can get a bank's borrowing approval if they have some optimistic private information in obtaining credits. In such a scenario, miscalibrated entrepreneurs might perceive their chances of achieving credits higher than the costs of the application ($\alpha > 0, \omega^* > \omega_0$), which will encourage them to ask for credits. Therefore, miscalibration will decrease discouragement for entrepreneurs and we make the second hypothesis:

H1b: miscalibration will have a negative effect on discouragement.

3.2 Dispositional optimism and discouragement

Dispositional optimism refers to generalized expectancies for experiencing positive outcomes (Scheier et al., 2001). Individuals that are subject to dispositional optimism show confidence in a way that is both broad and diffuse, encouraging them to approach challenges with enthusiasm and persistence (Adomako et al., 2016; Carver and Scheier, 2003). As a psychological trait, dispositional optimism tends to remain relatively stable for individuals over time, situation, and context (Hmieleski and Baron, 2009; Puri and Robinson, 2007; Schulman et al., 1993).

Different from miscalibration, optimism is defined as the overweighting of probabilities associated with favorable states of nature (Tversky and Kahneman, 1992). Therefore, optimistic individuals subjectively transform objective probabilities into decision weights (say, $\pi(\omega)$) that overweight the probability associated with the best outcome and underweight the probability associated with the worst outcome (Chateauneuf and Cohen, 1994). In consequence, an optimistic individual will have the decision weight associated with the best outcome greater than its

objective probability, whereas the decision weight associated with the worst outcome smaller than its objective probabilities.

In terms of the perceived probability of borrowing success, an optimistic entrepreneur has a weighting function denoted by $\omega^* = \pi(\omega) > \omega$, where $\pi(\omega)$ is the weighting function that overestimates the true probability of having a successful borrowing application. Likewise optimistic entrepreneurs also underestimate the true probability of a rejection $(1 - \omega^*) = \pi(1 - \omega) < (1 - \omega)$. Accordingly, the expected value of borrowing application Y for an optimistic entrepreneur will be $E_\pi(Y) = \omega^* > \omega = E(Y)$.

Theoretically, entrepreneurs subject to dispositional optimism will be confident about their chances of achieving successful loan applications. Indeed, not only entrepreneurs subject to dispositional optimism can misperceive their credit needs encouraging their bank application (Fraser, 2019); but dispositional optimism can also make individuals overweight the probability of good outcomes and underweight the risk of rejection applications (Chateauneuf and Cohen, 1994). Then, entrepreneurs subject to dispositional optimism should *perceive* their chances of achieving successful borrowing applications as higher than the *true* chances, encouraging their credits applications. In this case, the cognitive component representing dispositional optimism α should be positive in the linear specification, making $\omega^* > \omega$. Therefore, entrepreneurs affected by dispositional optimism will become less likely to be affected by discouragement because they overweight their true probability of having a successful application $(\alpha > 0, \omega^* > \omega_0)$. Therefore, we create our second hypothesis:

H2: Dispositional optimism will have a negative effect on discouragement.

3.3 Entrepreneurial self-efficacy (ESE) and discouragement

Entrepreneurial Self-efficacy (ESE) refers to entrepreneurs' belief in their capability to perform tasks and roles aimed at entrepreneurial outcomes (Chen et al., 1998). The specific concept of ESE is derived from the broader sense of self-efficacy, that traces back to social cognitive theory (SCT) (Bandura, 1977; Bandura et al., 1999). Recently, ESE has emerged as a key cognitive factor in entrepreneurship research (Newman et al., 2019), widely influencing entrepreneurial motivation, intention, behavior, and firm's performance (Chen et al., 1998; Hmieleski and Baron, 2008; Markman et al., 2002; McGee and Peterson, 2019). Indeed, though ESE is a belief, it is highly associated with entrepreneurial action. That is, entrepreneurs confident in their ability to perform a single task will normally perform better in this task, making ESE highly related to the firm's performance (Hmieleski and Baron, 2009, 2008). Without a minimal level of entrepreneurial self-efficacy, it is unlikely that individuals would be sufficiently motivated to engage in the entrepreneurial process that requires both passion and persistence (Newman et al., 2019).

Though developing an initiating relationship with investors is considered an important entrepreneurial task for entrepreneurs high in ESE (DeNoble et al., 1999), few studies relate ESE and financial decisions (Cassar and Friedman, 2009; Newman et al., 2019). Nonetheless, ESE is highly associated with an entrepreneur's good performance and firm growth (Baron et al., 2016; Baum and Locke, 2004; Douglas, 2013; Hmieleski and Baron, 2008). Furthermore, entrepreneurs high in ESE are more engaged in specific actions that are highly known for decreasing information asymmetry between investors and entrepreneurs (Hosono and Xu, 2009; Rajan, 1992), such as formalizing business plans and committing more personal funds into the venture (Brinckmann and Kim, 2015; Cassar and Friedman, 2009).

We expect two consequences from entrepreneurs high in ESE in terms of borrowing success. First, entrepreneurs high in ESE should have better chances of borrowing success $\omega \geq \omega_0$. Good records reflected in good performance should attract investors' funds as it increases the chances of repayment. Having personal funds committed in the venture should also send positive signs to

outside investors to lend credits to the venture. Second, actions taken by entrepreneurs high in ESE should decrease the level of information asymmetry between investors and entrepreneurs. Besides, ESE improves the relationship between entrepreneurs and investors. Ties and relationships are a form of information transference between parts (Shane and Cable, 2002). In this case, entrepreneurs high in ESE should *perceive* their good chances as $\omega^* \rightarrow \omega$ as information asymmetry decreases. Indeed, having a good relationship with investors will provide private information to entrepreneurs about their true chances of obtaining credits.

Therefore, these two consequences of ESE should cause a negative effect on discouragement. Entrepreneurs high in ESE should have good chances of borrowing success and, at the same time, lower levels of information asymmetry. Consequentially, these entrepreneurs will *perceive* their *true* good chances of obtaining credit, that is $\omega^* \rightarrow \omega$, and become less discouraged. The third and last hypothesis goes as follows:

H3: Entrepreneurial Self-efficacy (ESE) will have a negative effect on discouragement.

4 Methodology

4.1 Sample and procedures

We used surveys to collect data from French entrepreneurs as our main interest lies in cognitive constructs that should be elicited with proper instruments. The initial list of French SMEs was extracted from the AMADEUS database. The search strategy was based on the following criteria: we first selected only firms that are both considered SMEs according to the European Commission definition[11]. Second, we focused on independent firms, discarding those firms belonging to a larger group of firms. To identify these firms, we adopted a conservative

[11] The European Commission defines a SME as a firm with: (1) less than 250 employees; (2) turnover less or equal to €50 million or balance sheet less or equal to €43 million.

approach and selected firms that have both no subsidiaries and are not integrated into any group. Third, we selected only firms with at least one available contact email. After setting these parameters, we extracted an initial list with 15.335 French firms.

Sequentially, we used an email diffusion program to send automatic surveys to the contacts. The bounce rate reached almost 27% of the list with invalid or non-existent emails. Thus, we delivered around 12.820 thousand emails with a questionnaire. To ensure that our sample is represented by entrepreneurs, we asked some validation questions. First, to avoid having the questionnaire answered by employees, we asked on the email to answer the questionnaire only those who were at least (1) founder of the company or (2) one of the top managers to ensure that we would only receive information about the entrepreneur. Second, not all information in AMADEUS is updated and many firms listed as SMEs are no longer SMEs, having more than 250 employees or a turnover higher than €50 million. Therefore, we asked the annual turnover and number of employees to confirm that our sample of entrepreneurs belongs to SMEs indeed. The first wave of surveys delivered 88 responses. A follow-up email on the following week delivered 78 responses. Both samples are similar and there are no statistical differences in each wave of the sample. Combining the samples, we had 166 responses in total (around a 1,2% response rate)[12]. After excluding the non-SMEs using check-up information and missing data, the final sample was 158 observations. The sample size is consistent with the difficulties to collect cognitive data using surveys, but it is consistent with previous studies on the field (Baron et al., 2011; Hmieleski and Baron, 2008; Hmieleski and Corbett, 2008). The questionnaire is presented in Appendix B.

The participants of our survey include 124 male entrepreneurs and 34 females, with an average age of 53 years. Most entrepreneurs are novice (n = 90), some are serial entrepreneurs (n

[12] We analyse the low response ratio because of the method we use to deliver surveys. First, many emails we collect on AMADEUS database are already inactivate, some former entrepreneurs even replied that the firm does not exist anymore. Second, many firms anti-SPAM filters considered our survey as a SPAM, preventing it to reach the entrepreneur's mailbox. Third, the emails were delivered in mid-2020 and the uncertainties caused by the pandemics in SMEs could have decreased the response rate.

= 37), and the remaining entrepreneurs are portfolio entrepreneurs (n = 31). The firms of the sample are mostly over 10 years old (n = 132), some firms are between 5 and 10 years old (n = 23) and few firms are less than 5 years old (n = 3). Most firms have limited liability (n = 102) and one-third of firms have unlimited liability (n = 56). In terms of the number of employees, most firms have between 10 and 49 employees (n = 74), some firms have between 1 and 9 employees (n = 66) and few firms have either no employees (n = 10) or between 50 and 249 employees (n = 8). Most firms do not have family participation (n = 97) and are located in the urban area (n = 112). Besides, most firms belong to three wide categories of the industry: production (n = 43), knowledge services (n = 90), and retail or wholesale (n = 25) [13]. Lastly, 31 respondents reported discouragement (19.62% of the sample)[14].

4.2 Statistical approach

The empirical analysis lies in identifying the likelihood of discouragement using cognitive variables and control variables. Thus, we adopt a similar approach from Neville et al. (2018) to analyze discouragement. We use, then, a binary question (yes or no) to identify discouragement in our sample as we can only observe if discouragement occurred or not. Thus we only observe D_i that assumes the value of 1 when discouragement occurred, 0 otherwise; for a given firm i. Then, we use Probit regression models to estimate the parameter using the maximum likelihood technique. Specifically, Probit models assume the form $Pr\ Pr\ (D = 1 \mid X) = \Phi(X\beta)$ where X is

[13] The sample we use is in great part representative of French SMEs. The annual report of SMEs from *Observatoire des PMEs* and reports from the *Banque de France* show that more than 70% of entrepreneurs are men, relatively older with 25% of entrepreneurs with more than 60 years old, and high educated with only 16% of entrepreneurs without any diploma. French SMEs have also, on average, 21 employees. However, almost half of the SMES have less than 5 years, making our sample relatively biased for older and surviving firms.

[14] A sample with 19.62% of discouraged borrowers is in accordance with previous studies on discouragement. The sample in Freel et al. (2012) shows 14.60% of discouragement and the sample in Neville et al. (2017) shows 22% of discouragement on the sample collected in 2003 and 30% in 1998). Fraser (2014) estimates that 4% of SMEs are committed by discouragement, the difference between our report and the estimates can be the measure we use, that is identical to Neville et al. (2017). Besides, to our knowledge, this is the first study using a French sample of SMEs.

the vector of independent variables, β is the vector of parameters and Φ is the Cumulative Distribution Function (CDF) of the standard normal distribution.

Using Fraser's (2014) empirical specification $\omega^* = \omega + \alpha$ to run the statistical model with observed discouragement as the dependent variable, the model specification goes as follow:

$$Discouragement_i = \beta_1 + \beta_2 Miscalibration_i + \beta_3 ESE + \beta_4 Dispositional\ optimism_i + \sum_{n=1}^{N} \beta_n Control_{n,i} + \varepsilon_i \quad (2)$$

where ε is the error term, *miscalibration, ESE* and *dispositional optimism* are the cognitive factors we want to test for entrepreneur i, *Control* represents individual and firm characteristics for entrepreneur i and *Discouragement* is the dependent variable that indicates if entrepreneur i responded discouragement or not.

Next, we present the results in hierarchical models to separately check the inclusion of each cognitive factor effect on discouragement before making a full model with all variables of interest. The control variables we use are in accordance with Freel et al.'s (2012) characterization of discouragement borrowers. All variables were mean-centered before being entered in the regression. Also, we present the descriptive statistics and correlation of all variables we use in our model. The highest variation inflation score was 1.51, falling within the acceptable range. A full description of the variables is presented in Table 3.1 whereas the descriptive statistics are presented in Table 3.2.

4.3 Measures

Discouragement: we follow Neville et al. (2017) that use samples from the US Federal Reserve Board's *Survey of Small Business Finances (SSBF)*. Thus, we imitate the question from SSBF to create a binary question, where one indicates an affirmative response to the question:

"During the last three years, were there times when the firm needed credit, but did not apply because it thought the application would be turned down?"; zero otherwise. Using this question, we collect information only from entrepreneurs that had credit demands when discouragement occurred ($\theta \geq \theta_0$). Besides, this question already reveals in which decision group the entrepreneur belongs to, which can be ($\omega^* \geq \omega_0$) for seekers and ($\omega^* < \omega_0$) for discouraged borrowers, in accordance with Fraser's (2014) theoretical model of discouragement.

Overconfidence: the variable we use to measure the calibration of the probability of an individual's judgments follows Fischhoff et al. (1977). The method exhibits good reliability and is widely used in the literature (Adomdza et al., 2016; Busenitz and Barney, 1997; Forbes, 2005). Respondents face a series of questions, for example, which one of two cities is the biggest for five pairs of cities and must indicate their degree of certainty in a half-range probability scale (50% - 100%). Overconfidence is constructed as the average of the difference a_{ik} - c_{ik}, where a_{ik} is respondent i's estimated confidence of being right on judgment k, and c_{ik} = 1 if i is correct on judgment k, else c = 0.

Dispositional optimism: the Life Orientation Test-Revised (LOT-R) developed by Scheier et al. (1994) is used to measure dispositional optimism. The LOT-R consists of ten items that are measured using a seven-point Likert-type scale. As usual, only six items are used to create the dispositional optimism variable as we exclude four items considered "fillers" from the measure and, from the remaining six items, three of them related to pessimism are reverse-coded. We summed the item totals and averaged them into a mean score where high scores indicated greater dispositional optimism and low scores indicated pessimism. This scale has been used in many previous studies and is a reliable and valid measure of dispositional optimism (Ayala and Manzano, 2014; Hmieleski et al., 2013; Hmieleski and Baron, 2009; Simon et al., 2000). The Cronbach's alpha of 0,69 indicates that internal reliability is good for the French dataset and consistent with other samples (Bernoster et al., 2018).

ESE. We use the instrument designed by DeNoble et al. (1999) to measure ESE. Many articles in entrepreneurship literature rely on the authors' instrument (Hallak et al., 2015, 2012; Hmieleski and Corbett, 2008). The measure consists of 23 items that load into a 6-dimensional construct: (1) developing new product and market opportunities, (2) building an innovative environment, (3) initiating investor relationships, (4) defining core purpose, (5) coping with the unexpected, and (6) developing critical human resources. We asked participants to evaluate each item using a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree). The scores were summed to form an overall measure of entrepreneurial self-efficacy. This measure produced a Cronbach's coefficient alpha of 0,9 which is sound.

Control variables. The choice of control variables follows the relevant literature on discouragement, the variables are in accordance with the characterization of discouraged borrowers in Freel et al. (2012) and similar researches on SME's finance. We asked participants to provide personal, firm, and location information. Thus, we measured entrepreneur's characteristics such as age, gender, or years of experience. Also, we measured the firm's characteristics such as the firm's age, number of employees, sales growth, industry, and city size of the firm's location. Next, we describe all control variables, their measures, and their potential relationship with discouragement.

4.3.1 Gender

Credit discrimination and gender-related differences affect the capital structure for both male-led businesses and female-led businesses (Marlow and Patton, 2005; Mirchandani, 1999; Verheul and Thurik, 2001). Indeed, evidence suggests that female entrepreneurs are more frequently charged with higher interest rates and pledged with higher collateral demands than their male peers (Coleman, 2007). In parallel, Mijid (2009) found that female entrepreneurs have higher loan denial rates and lower loan application rates. Moreover, when it comes to gender-related differences, female entrepreneurs are more likely to be risk-averse, control averse, and have a perception that borrowing creates higher risk (Coleman, 2000; Treichel and Scott, 2006; Watson,

2006). Hence, gender is expected to correlate to discouragement as female entrepreneurs could present a higher level of discouragement. Therefore, we collected information about the gender of the participant by simply asking to inform their gender.

4.3.2 Serial and portfolio entrepreneurs

Entrepreneur's working experience enhances the availability of credit (Cole, 1998). Further evidence in Nofsinger and Wang (2011) show that cumulative experience in the industry helps to solve some issues involving access to credit such as information asymmetry and moral hazard. Besides, from the lender perspective, experienced entrepreneurs are expected to perform better than novice entrepreneurs (Abdesamed and Abd Wahab, 2014). Thus, experience is expected to be positively related to application success and influence borrowing decisions. We measured entrepreneur's experience by asking them if: this is their first time as an entrepreneur (meaning *novice*) if this is not their first time as an entrepreneur, but they only have one business each time (meaning *serial*), or if they run many businesses each time (meaning *portfolio*). We use *novice* as the reference group in the models.

4.3.3 Legal status

The legal status of firms affects the borrowing attitudes of entrepreneurs (Cassar, 2004). Once hypothesized to generate credibility among banks and customers, limited liability can increase the rate of failures in small businesses (Storey, 1994). Thus, contrary to the credibility hypothesis, Freel et al. (2012) argue that limited small businesses will feel discouraged to apply for bank credits as a higher rejection rate would bear on their applications. We asked participants to inform if their businesses were limited liability or not, creating a binary variable for legal status.

4.3.4 Family business

Family involvement in the business is negatively and significantly associated with discouragement in Freel et al. (2012). Though the literature says that family firms are more conservative and less likely to seek access to bank loans (Gallo and Vilaseca, 1996). A

countervailing argument is that competing calls on limited capital imply a higher need for capital and, in turn, can decrease discouragement (Freel et al., 2012). In either case, family involvement shows a correlation with discouragement which justifies the need to control for family involvement. We asked participants if they had at least one family member involved in the ownership of the business to consider family business or not.

4.3.5 Entrepreneur's age

Entrepreneur's age affects financial decisions as older entrepreneurs, for example, are less likely to invest additional finance into their firms (Romano et al., 2001). Similarly, young entrepreneurs rely more on bank credits than older entrepreneurs, who rely more on internal financing (Vos et al., 2007). Thus, discouragement is likely to increase with the entrepreneur's age. We asked participants to classify their age within 9 different categories: (1) <25; (2) 25 to 29; (3) 30 to 34; (4) 35 to 39; (5) 40 to 44; (6) 45 to 49; (7) 50 to 54; (8) 55 to 59; and (9) >60.

4.3.6 Firm's age and size

There is a consensus that a firm's age and size are related variables, though this relationship is not necessarily monotonic. Even so, as a firm grows and becomes older, it influences the firm's financial lifecycle (Berger and Udell, 1998). Besides, as small and young firms suffer from liabilities of smallness and newness (Aldrich and Auster, 1986; Stinchcombe, 1965), being more informationally opaque and having fewer assets, larger and mature firms present a lower level of information asymmetry. Lastly, small firms are more likely to seek smaller amounts of funding, making banks less willing to lend as the cost might surpass the profits in such a small operation (Treichel and Scott, 2006). Thus, it is expected that discouragement decreases both with age and size.

We measured the firm's size by collecting information about the number of employees. There are three categories: (1) 0 to 9 employees; (2) 10 to 49 employees; and (3) 50 to 249 employees. The firm's age was measured using four categories: (1) <2 years; (2) 2 to 5 years; (3) 6 to 10 years; and (4) >10 years.

4.3.7 Industry

Credit facilities and needs may vary according to the type of industry. We use the same industry aggregation used in Freel et al. (2012), who consider three types of industries: production, knowledge-intensive services, and wholesale and retail[15]. The authors argue that the production category has higher levels of tangible assets, while knowledge services have more intangible assets and human capital. The wholesale and retail sectors are characterized by less information asymmetry. Their results show that both the production sector and wholesale and retail sector are negatively and significantly related to discouragement in comparison to knowledge services, the reference group. We asked participants to specify their industry according to the three categories followed by a brief explanation about each category.

4.3.8 Location

Geographical location is believed to affect credit availability. Though many bank's services are becoming digitalized, bank's proximity is still relevant in many studies (Abor, 2007; Fatoki and Asah, 2011). Small firms located inside major cities, where there is a concentration of bank agencies, are expected to have fewer difficulties than their counterparties outside urban areas. Thus, small firms should have higher contact and relationship with banks in urban areas than in rural areas. In this case, firms in rural areas should have a higher level of discouragement. We ask participants to specify if their firm is located in urban or rural areas.

4.3.9 Rejected application

Fraser (2014) specifies that negative past experiences such as rejections can trigger discouragement. For example, trends in discouraged borrowers show that discouragement rose

[15] Our survey specifies "Production" as manufacturing, construction, mining and quarrying, electricity, gas and water supply; "knowledge services" as financial services, business services, computer and related services, research and development (R&D) services and real estate services; ''wholesale and retail'' is self-explanatory, including restaurants, sale and repair of motor vehicles. The specification is the same in Freel et al. (2012). Our survey also included a fourth option "Other" followed by a blank gap where the participants could describe their business in case of doubt. By doing so, we could assign the right category following the business description. Few participants chose the "Other" category. To avoid arbitrariness issues caused by our self-assignment, we also ran the models without industry and models using the fourth category "Other" alongside the other three categories. No results changed in any specification.

sharply after the Global Financial Crisis, most likely related to negative past experiences during the Crisis (Fraser, 2014). We measure the rejection number by asking the participants how many times they have been rejected by the bank in the last three years[16].

Table 1 just summarizes each variable.

[16] We also run models using rejection rate instead of rejection number. The measure is just the proportion of number of rejections and number of applications. The results remain unchanged in both specifications. We cannot say which measure is better because both variables relate to negative past experiences, but number of rejections fits better the model in terms of AIC criteria.

Table 1: Variable's description

Variable	Description
Discouragement	Binary variable indicating 1 if entrepreneurs already felt discouragement.
Overconfidence	A numerical variable created as the average of the difference a_{ik} - c_{ik}, where a_{ik} is respondent i's estimated confidence of being right on judgment k, and c_{ik} = 1 if i is correct on judgment k, else c = 0; for a pair of five questions.
Dispositional Optimism	A numerical variable created averaging 6 seven-point Likert-type items.
ESE	A numerical variable created averaging 21 seven-point Likert-type items.
Gender (female)	Binary variable indicating 1 if female entrepreneurs, zero otherwise.
Type of entrepreneur	Categorical variable indicating if the entrepreneur is the type portfolio, serial or novice. We use "novice" as the reference.
Legal status	Binary variable indicating 1 if limited liability, zero otherwise.
Family Business	Binary variable indicating 1 if entrepreneurs have any member of their family in the ownership or management of the firm.
Entrepreneur's age	Numerical variable indicating the entrepreneur's age.
Employees	Categorical variable indicating the firm's size in terms of employees. There are three categories: micro (0 to 9 employees), small (10 to 49 employees) and medium (50 to 249 employees) as reference.
Industry	There are 3 categories: Production, Knowledge services, retail and wholesale. We use "Production" as the reference.
Firm's age	Numerical variable indicating the number of years of the company.
Location	Categorical variable indicating if the firm is located in an urban area or rural area. The rural area is the reference
Rejection	Numerical variable indicating how many applications were rejected in the last three years.

5 Results

Table 3.2 presents the descriptive statistics with mean, standard deviation, and bivariate correlation of all the variables we use in the models. As expected, variables related to age such as entrepreneur's age, firm's age, and years of experience show a moderate correlation. However, unexpectedly, entrepreneurial self-efficacy (ESE) shows a significant correlation with multiple control variables in our data.

Table 3.3 shows multiple Probit models with Discouragement as the dependent variable, the cognitive variables, and controls as independent variables. The first column shows the control variables only. The second column shows the control variables and entrepreneurial self-efficacy (ESE). The third column uses overconfidence (miscalibration) and control variables, while the fourth column presents the Probit regression with dispositional optimism and controls. The fifth column is the full model, accounting for ESE, miscalibration, dispositional optimism, and controls in the same regression.

Table 2 Descriptive Statistics: mean, standard deviation, correlation (pearson)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ESE	4.935	0.944	1												
2. Optimism	4.766	0.858	-0.069***	1											
3. Overconfidence	0.085	0.200	0.276	0.121	1										
4. Gender (female)	0.215	0.412	-0.194**	-0.03	0.11	1									
5. Type of entrepreneur	0.569	0.497	-0.199**	-0.025	0.086	0.300***	1								
6. Entrepreneur's age	53.506	8.759	-0.148*	0.115	0.011	0.081	-0.075	1							
7. Family	0.386	0.488	-0.180**	-0.078	-0.054	0.154*	-0.072	0.069	1						
8. Firm's size	2.506	0.693	0.172**	0.092	-0.046	-0.094	-0.029	0.005	-0.130	1					
9. Firm´s age	2.816	0.434	-0.288**	0.038	0.038	0.222***	0.192**	0.148*	0.096	0.205***	1				
10. Urban area	0.709	0.456	0.200**	0.070	0.093	-0.037	-0.079	0.042	-0.17**	0.107	-0.143*	1			
11. Legal Status (limited)	0.645	0.479	-0.072	0.111	-0.004	0.098	-0.056	0.022	0.098	-0.146*	0.022	-0.125	1		
12. Reject	0.259	0.706	0.047	0.026	-0.086	-0.04	-0.006	-0.019	-0.034	0.016	-0.25***	0.078	0.066	1	
13. Discouragement	0.196	0.398	-0.056	0.093***	-0.247	-0.026	-0.086	-0.001	-0.032	-0.039	-0.158**	0.001	0.066	0.520***	1

Note: Pairwise correlations among the variables used in the empirical analysis are reported in this Table. ***, ** and * Significant at the 1%, 5% and 10% levels respectively.

Table 3.3: Hierarchical Probit Estimation Results using Discouragement as dependent variable.

	Discouragement				
	(1)	(2)	(3)	(4)	(5)
ESE		-0.193			-0.080
		(0.157)			(0.170)
Overconfidence			0.986		1.393*
			(0.700)		(0.789)
Optimism				-0.420**	-0.461**
				(0.173)	(0.187)
Gender (female)	0.177	0.131	0.204	0.198	0.199
	(0.372)	(0.381)	(0.380)	(0.387)	(0.404)
Portfolio entrepreneur	0.368	0.449	0.351	0.326	0.333
	(0.372)	(0.378)	(0.377)	(0.383)	(0.403)
Serial entrepreneur	0.467	0.519	0.518	0.374	0.451
	(0.344)	(0.349)	(0.351)	(0.357)	(0.369)
Entrepreneur's age	0.003	0.0002	-0.001	0.004	-0.002
	(0.016)	(0.017)	(0.017)	(0.017)	(0.018)
Family	-0.184	-0.195	-0.146	-0.202	-0.118
	(0.297)	(0.302)	(0.300)	(0.309)	(0.320)
Firm's size	-0.261	-0.212	-0.273	-0.328	-0.354
	(0.210)	(0.214)	(0.213)	(0.224)	(0.235)
Service Industries	-0.433	-0.366	-0.485	-0.218	-0.245
	(0.303)	(0.312)	(0.309)	(0.326)	(0.339)
Retail and wholesale	-0.675	-0.660	-0.733	-0.492	-0.550
	(0.453)	(0.460)	(0.461)	(0.463)	(0.478)
Firm´s age	0.041	-0.078	-0.006	0.040	-0.095
	(0.352)	(0.366)	(0.353)	(0.364)	(0.384)
Urban area	-0.123	-0.063	-0.174	0.014	-0.031
	(0.300)	(0.305)	(0.304)	(0.313)	(0.323)
Legal Status (limited)	-0.002	-0.018	-0.048	0.020	-0.079
	(0.295)	(0.299)	(0.302)	(0.308)	(0.321)
Rejection	1.117***	1.125***	1.119***	1.147***	1.175***
	(0.236)	(0.238)	(0.241)	(0.245)	(0.259)
Intercept	-0.043	-0.268	0.046	-0.160	-0.067
	(0.675)	(0.703)	(0.685)	(0.718)	(0.751)
Observations	158	158	158	158	158
Log Likelihood	-57.020	-56.290	-56.037	-53.749	-51.990
Akaike Inf. Crit.	140.040	140.579	140.073	135.498	135.979

Note: The table reports average marginal effects from a Probit regression. The dependent variable Discouraged borrower takes on a value of 1 if the firm was discouraged and did not apply for credit during the last three years. The standard deviations are presented in parentheses. ***, ** and * Significant at the 1%, 5% and 10% levels, respectively.

Briefly, the data does not show a significant relationship between entrepreneurial self-efficacy and discouragement, wherever it is regressed without the other cognitive factors (model 2) or in the full model (model 5). Miscalibration is positive and significantly related to discouragement in the full model (model 5) ($p < 0.10$). Therefore, the data support H1a and not H1b; that is, miscalibration positively affects discouragement. The dispositional optimism coefficient is negative and statistically significant in models 4 and 5 ($p < 0.05$). Thus, the data also supports H2 regarding dispositional optimism and discouragement but does not support H3 regarding ESE and discouragement.

Thus, the data suggest that miscalibrated entrepreneurs have a higher incidence of discouragement, after controlling for all variables (model 5). The evidence supports our hypothesis H1a that miscalibration decrease the variance of possible outcomes. Therefore, miscalibrated entrepreneurs who have a negative view about borrowing success will be more discouraged ($\omega < \omega_0$).

Dispositional optimism, however, is negatively related to discouragement. As expected in hypothesis H2, optimistic entrepreneurs are confident about their chances of bank credit approval, decreasing the likelihood of discouragement. These entrepreneurs *perceive* their chances higher than the costs of obtaining credits ($\omega > \omega_0$).

Moreover, in all models, the number of rejections is highly significant ($p < 0.01$) to predict discouragement, which is expected. Other controls related to a firm's characteristics and individual characteristics do not show signs to explain the likelihood of discouragement.

6 Discussion

The results of the current study regarding discouraged borrowers suggest that dispositional optimism can decrease the likelihood of discouragement while miscalibration can

increase the likelihood of feeling discouraged, as expected in H1a and H2. Nonetheless, we do not find evidence that ESE relates to discouragement, as hypothesized in H3. From a theoretical perspective, these findings support the predictions of Fraser's (2014) model that cognitive components relate to discouragement.

Previous research on discouragement literature devoted attention to understand the entrepreneurial characteristics of discouragement (Chakravarty & Xiang, 2013; Freel et al., 2012; Mac an Bhaird et al., 2016). However, as Fraser (2019, p. 534) states, explanations regarding the firm's characteristics such as industry effects or firm's size explain at most a small percentage of the variation of the observed variation in financing decisions. Another large part of the unexplained variation in financing decisions would, therefore, be explained by behavioral components that affect the decision-making process. Indeed, the data in Table 3 shows that few controls are significant while both cognitive factors show statistical significance to predict the likelihood of discouragement. Rejection rate is shown to be highly significant in all Probit models and, indeed, is more related to perception than technical features.

Nonetheless, we hypothesized that ESE would decrease discouragement in H3, but the data shows no statistical significance for this variable (Table 3). A possible reason for no relationship between ESE and discouragement can be the relationship between ESE and debts. In ESE literature, few studies are explaining the relationship between ESE and financial decisions (Cassar & Friedman, 2009). Eventually, entrepreneurs high in ESE seek more equity than debt from external sources. This reasoning is in line with evidence of the innovative dimension and high growth characteristic of ESE (DeNoble et al., 1999; Newman et al., 2019). The literature suggests that entrepreneurs with growth aspirations and from innovative and technological industries are more likely to seek equity than debt (Manigart & Wright, 2013; Minola et al., 2013; Minola & Giorgino, 2008). For these reasons, the lack of support of ESE and discouragement can be rather a lack of association between ESE and debt financing.

Moreover, the discussion around discouragement takes part in the context of SMEs' access to credit. Discouragement is pointed to as one of the reasons that cause credit rationing to small firms. Different from bank screening errors that erroneously cause credit rationing to viable firms, many firms do not even apply for bank credits as they perceive low chances of obtaining credits. This point is particularly concerning as most attention to credit constraints is given to the supply side of the credit market without extending the analysis to issues associated with the demand side of the credit market (Du & Nguyen, 2021). Discouragement shows the existence of the "latent demand" (Freel et al., 2012) for bank credits that are unobserved in the number of rejection rates. Nonetheless, in qualitative terms, not all discouraged borrowers are meant to be creditworthy as many firms are indeed unviable ventures. In this case, the debate around SME's access to credit is centered in two possible cases: firms that are wrongly rejected by the bank's screening process and *viable firms* that do not apply for credit because of behavioral aspects related to the decision to apply for credits.

7 Concluding remarks

Understanding which cognitive aspects relate to discouragement should bring implications for policymakers and bank managers interested in SMEs financing. Many actions taken by policymakers aim at the supply side of the credit market to improve the access of credit to small firms. However, it can be useless to improve the credit supply if entrepreneurs do not apply because of discouragement. Related, banks are losing potential good clients that are creditworthy but just decide not to apply for credits because they falsely believe they will be turned down. Therefore, knowing that entrepreneurs may not apply for credits because of some cognitive bias, e.g. miscalibration, can make policymakers act to take some corrective procedures to "unbias" these entrepreneurs (Kahneman & Tversky, 1977).

Nonetheless, the present study has several limitations. One of the main limitations of this study is the cross-sectional nature of the data. The first issue related to cross-sectional data is the

impossibility to draw causality on the results. Related to that, the second issue relates to the lack of time dimension on the data. Not only it would allow more sophisticated methods that could enable causality on the results, but it also relates to discouragement itself. A major antecedent of discouragement is past negative experiences with banks. Our model specification partially addresses this issue using past rejection rate as a predictor. However, major effects are not taken into consideration without longitudinal data, such as the order of the events. For example, Fraser (2019) demonstrates the Global Financial Crisis, alongside the posterior credit crunch, as an important determinant for increasing discouragement in the following years. Another limitation encountered in this study is the possible survival bias in our data. The data description shows that most firms represented in our sample have more than 10 years old. Thus, younger firms and firms who failed before are misrepresented in the data. Besides, the critical developmental stage for start-ups is generally the first 6 years of existence (Shrader et al., 2000). Nonetheless, there are many examples in the entrepreneurial literature with samples containing a high average for a firm's age (Baron et al., 2011; Hmieleski et al., 2013; Hmieleski & Baron, 2008).

Based on the exposed limitations, future research can include new variables and the temporal component in the discouragement and cognition analysis. Further investigation on, for example, the relationship between credit approvals and discouragement can provide insights about which one is the antecedent of the other. That is, few negative applications can trigger discouragement. Besides, time analysis can verify the persistence of misperceptions caused by cognitive factors. Entrepreneurs that decide not to apply during a certain period due to discouragement can update their beliefs in the next period or keep their beliefs, even in case of exogenous events, such as moments of economic booms.

Lastly, the unexpected lack of support to H3 raises questions about the relationship between ESE and fundraising that demands further investigation. We discussed the relationship between ESE and debt, which is not totally developed in ESE literature. Future research could also try to unveil how entrepreneurs high in ESE relates to external financing decisions.

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Appendices

Appendix 3A

The full theoretical approach goes as follow: we assume borrowing success as a discrete binary variable $Y \in \{0,1\}$, in which $Y = 1$ in case of success; 0, otherwise. Though the true probability of $Pr\ Pr\ (Y = 1)$ is unknown, the probability mass function for such variable is specified as:

$$\Pr(y) = \begin{cases} \omega, & y = 1 \\ (1-\omega), & y = 0 \end{cases} \quad (1)$$

However, as the theoretical model assumes that the true probability of success is unknown, entrepreneurs only know the *perceived* probability of success to base their decisions. Similarly:

$$\Pr_*(y) = \begin{cases} \omega^*, & y = 1 \\ (1-\omega^*), & y = 0 \end{cases} \quad (2)$$

Overconfidence (miscalibration)

A miscalibrated entrepreneur modifies the probabilities associated with the outcomes in order to decrease its variance. The subjective variance of an outcome will be lower than its true variance in such a way that:

$$var_*(X) = \sum_{i=1}^{n} p_i^*(x_i - E(x_i))^2 < \sum_{i=1}^{n} p_i(x_i - E(x_i))^2 = var(X) \quad (3)$$

where p_i^* are the modified subjective probabilities p_i.

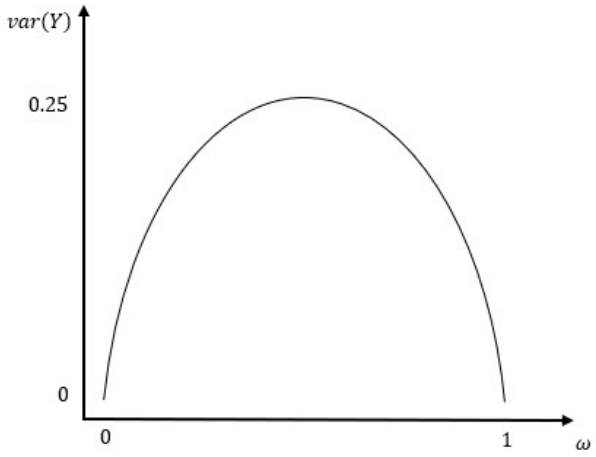

Figure A1: The figure illustrates the variance change when the probability varies for a dichotomous variable with the distribution $Y \sim Ber(\omega)$, coherent with the discrete variable that represents borrowing success event. In the figure, we can see that variance is lower whenever ω is closer to 0 or 1.

Therefore, two possible cases are derived from this specification. The true probability of success ω lies somewhere between the range of 0 and 1. In order to decrease the variance of borrowing success, the perceived probability ω^* of a miscalibrated entrepreneur can be either lower or greater than the true probability of success ω. Thus, entrepreneurs can be either optimistic or pessimistic if miscalibration leads them to an increase of expected return or a decrease of expected return, respectively. Thus, entrepreneurs will have an optimistic perception if:

$$E_*(Y) = \omega^* > \omega = E(Y) \tag{4}$$

Given that $\omega^* = f(\omega, \alpha)$; α, the cognitive component here denoted as miscalibration, will assume a positive value making $\omega^* > \omega$.

Similarly, entrepreneurs will have a pessimistic perception if:

$$E_*(Y) = \omega^* < \omega = E(Y) \tag{5}$$

where, in this case, α will assume a negative value, making $\omega^* < \omega$.

Equation 4 corresponds to H1a while Equation 5 corresponds to H1b.

Dispositional optimism

Individuals subject to dispositional optimism transform the objective probabilities into weighting functions (denoted $w(p)$). An optimistic decision-maker applies a concave weighting function to the probability distribution. The concave weighting function will attribute higher weights to the best outcomes and lower weights to the worse outcomes. Therefore, the weights of the decision π_i are specified as follow:

$$\begin{cases} \pi_i = w\left(\sum_{j=i}^{n} p_j\right) - w\left(\sum_{j=i+1}^{n} p_j\right) \; for \; i = 1, \dots, n \\ \pi_n = w(p_n) \end{cases} \tag{6}$$

where w is a concave weighting function.

In terms of the perceived probability of borrowing success, an optimistic entrepreneur has a weighting function denoted by:

$$\omega^* = \pi(\omega) > \omega \tag{7}$$

in which $\pi(\omega)$ is the weighting function that overestimates the true probability of having a successful borrowing application and, consequentially, underestimates the true probability of a rejection $(1-\omega^*) = \pi(1-\omega) < (1-\omega)$. Accordingly, the expected value of borrowing application Y for an optimistic entrepreneur should be:

$$E_\pi(Y) = \omega^* > \omega = E(Y) \tag{8}$$

Therefore, entrepreneurs subject to dispositional optimism should be confident about their chances of achieving successful loan applications, relating to H2.

Entrepreneurial self-efficacy

Two events happen for entrepreneurs high in ESE. First, they will have higher chances of borrowing success $Pr\ Pr\ (Y = 1) = \omega$. Thus, entrepreneurs high in ESE will generally have chances of borrowing success higher than the costs of application:

$$E(Y) = \omega > \omega_0 \tag{9}$$

The second event is decreasing information asymmetry between entrepreneurs and investors. When information asymmetry is zero, the real chances of borrowing success will depend solely on the firm's performance and the net present value of the project. In this case, the perceived borrowing success will converge to the true borrowing success:

$$\lim_{k \to 0} \omega_k^* \to \omega \tag{10}$$

where k is the level of information asymmetry.

Appendix 3B

Questionnaire

Q1: Êtes-vous le fondateur ou l'un des fondateurs de votre entreprise?

A1: Oui

A2: Non

Q2: Êtes-vous le fondateur ou l'un des fondateurs de votre entreprise?

A1: Oui

A2: Non

Q3: Depuis combien de temps votre entreprise est-elle enregistrée?

A1: Moins de 2 ans

A2: 2 ans ou plus mais moins de 5 ans

A3: 5 ans ou plus mais moins de 10 ans

A4: Plus de 10 ans

Q3: Combien d'employés à temps plein travaillaient dans votre entreprise à la fin de 2019?

A1: Aucun employé

A2: De 1 employé à 9 employés

A3: De 10 employés à 49 employés

A4: De 50 employés à 249 employés

A5: Plus de 250 employés

Q4: Quel est le chiffre d'affaires de votre entreprise en 2019?

A1: Jusqu'à € 2 millions

A2: Plus de € 2 millions et jusqu'à € 10 millions

A3: Plus de € 10 millions et jusqu'à € 50 millions

A4: Plus de € 50 millions

Q5: Votre entreprise est-elle à responsabilité limitée?

A1: Oui

A2: Non

Q6: Votre entreprise est située dans des zones rurales ou urbaines?

A1: Zone Urbaine

A2: Zone Rural

Q7: Dans quelle secteur votre entreprise opère-t-elle?

A1: Autre

A2: Production

A3: Vente au détail et en gros

A4: Services de connaissances

Q8: Y a-t-il d'autres membres de votre famille impliqués dans la gestion et la propriété de l'entreprise?

A1: Oui

A2: Non

Q9: Au cours des trois dernières années, y a-t-il eu des moments où l'entreprise avait besoin de crédit, mais n'a pas fait de demande parce que vous pensiez que la demande serait refusée?

A1: Oui

A2: Non

Q10: En ce qui concerne les prêts bancaires au cours des trois dernières années:

Combien de fois avez-vous demandé?

Combien de fois a-t-il été pleinement approuvé?

Combien de fois a-t-il été partiellement approuvé?

Combien de fois a-t-il été rejeté?

Q11: ESE - Les questions suivantes visent à analyser certaines caractéristiques personnelles. Êtes-vous d'accord, en désaccord ou ni en accord ni en désaccord avec les affirmations suivantes? (Evaluez : 1 – Tout à fait d'accord, 7 – Pas du tout d'accord)

Je peux voir de nouvelles opportunités de marché pour de nouveaux produits et services.

Je peux découvrir de nouvelles façons d'améliorer les produits existants.

Je peux identifier de nouveaux domaines de croissance potentielle.

Je peux concevoir des produits qui résolvent les problèmes actuels.

Je peux créer des produits qui répondent aux besoins non satisfaits des clients.

Je peux mettre des concepts de produits sur le marché en temps opportun

Je peux déterminer à quoi ressemblera l'entreprise

Je peux créer un environnement de travail qui permet aux gens d'être plus leur propre patron.

Je peux développer un environnement de travail qui encourage les gens à essayer quelque chose de nouveau.

Je peux encourager les gens à prendre des initiatives et à prendre des responsabilités pour leurs idées et leurs décisions, quel que soit le résultat.

Je peux former des relations de partenaire ou d'alliance avec d'autres.

Je peux développer et entretenir des relations favorables avec des investisseurs potentiels.

Je peux développer des relations avec des personnes clés connectées à des sources de capitaux.

Je peux identifier des sources potentielles de financement pour l'investissement

Je peux exprimer la vision et les valeurs de l'organisation

Je peux inspirer les autres à adopter la vision et les valeurs de l'entreprise.

Je peux formuler un ensemble d'actions à la recherche d'opportunités.

Je peux travailler de manière productive sous un stress, une pression et un conflit continus.

Je peux tolérer des changements inattendus dans les conditions commerciales

Je peux persister face à l'adversité

Je peux recruter et former des employés clés.

Je peux développer des plans d'urgence pour combler le personnel technique clé

Je peux identifier et construire des équipes de gestion.

Q12: Les questions suivantes visent à analyser certaines caractéristiques personnelles. Êtes-vous d'accord, en désaccord ou ni en accord ni en désaccord avec les affirmations suivantes?*

En période d'incertitude, je m'attends généralement au Meilleur

C'est facile pour moi de me détendre (F)

Si quelque chose peut mal tourner pour moi, ce sera le cas (R)

Je suis toujours optimiste quant à mon avenir

J'aime beaucoup mes amis (F)

C'est important pour moi de m'occuper (F)

Je compte rarement sur de bonnes choses qui m'arrivent (R)

je ne m'énerve pas trop facilement (F)

Je compte rarement sur de bonnes choses qui m'arrivent (R)

Dans l'ensemble, je m'attends à ce qu'il m'arrive plus de bonnes choses que de mauvaises

* Fillers (F) were not considered, and three items (R) were reversed for the optimistic measure

Q13: Veuillez répondre aux questions suivantes sans effectuer de recherche préalable. Laquelle de ces deux villes est la plus grande en termes d'habitants?

A1: Caire ou Moscou

Quelle est votre certitude de votre réponse précédente? (Entrez un nombre de 50 à 100, 50 étant très incertain et 100 très certain)

A2: Honolulu ou Lima

Quelle est votre certitude de votre réponse précédente? (Entrez un nombre de 50 à 100, 50 étant très incertain et 100 très certain)

A3: Rome ou Barcelona

Quelle est votre certitude de votre réponse précédente? (Entrez un nombre de 50 à 100, 50 étant très incertain et 100 très certain)

A4: Ankara ou Naples

Quelle est votre certitude de votre réponse précédente? (Entrez un nombre de 50 à 100, 50 étant très incertain et 100 très certain)

A5: Buenos Aires ou San Francisco

Quelle est votre certitude de votre réponse précédente? (Entrez un nombre de 50 à 100, 50 étant très incertain et 100 très certain)

Q14: Quelle est votre genre?

A1: Masculin

A2: Féminin

A3: Autre

Q15: Quel âge avez-vous?

A1: Moins de 25 ans

A2: Entre 25 et 29

A3: Entre 30 et 34

A4: Entre 35 et 39

A5: Entre 40 et 44

A6: Entre 45 et 49

A7: Entre 50 et 54

A8: Entre 55 et 59

A9: Plus de 60 ans

Q16: Quel type d'entrepreneur êtes-vous?

A1: C'est votre première fois en tant qu'entrepreneur

A2: Ce n'est pas votre première fois en tant qu'entrepreneur, mais vous n'avez qu'une entreprise à la fois

A3: Vous gérez plus d'une entreprise à chaque fois

Conclusion Générale

Ces trois chapitres de cette thèse explorent les effets des facteurs cognitifs dans les décisions financières de l'entrepreneur. Les entreprises entrepreneuriales sont confrontées à des contraintes financières qui peuvent s'expliquer en partie par des variables cognitives qui affectent le processus de prise de décision entrepreneuriale. Ainsi, le premier chapitre analyse les facteurs cognitifs liés à la confiance de l'entrepreneur dans les décisions financières et les résultats de l'entreprise. Les deuxième et troisième chapitres suivants explorent empiriquement le lien entre l'auto-efficacité entrepreneuriale (ESE), l'excès de confiance et l'optimisme dispositionnel sur différentes questions de financement. Nos résultats montrent que l'ESE affecte positivement le montant du financement externe chez les entrepreneurs et le type de source qu'ils obtiennent de ce financement. L'optimisme dispositionnel et l'excès de confiance, d'un autre côté, affectent la probabilité que les entrepreneurs se sentent *découragés par l'emprunt*.

Cette thèse devrait avoir des contributions au domaine de la recherche et à l'élaboration des politiques. La littérature en finance entrepreneuriale appelle depuis peu à des investigations sur les contraintes financières liées à la demande du marché des capitaux, c'est-à-dire la demande de capital de l'entrepreneur. Les résultats obtenus dans ces études fournissent plus d'entrées pour la littérature récente. En outre, les réalisations de cette thèse devraient aider au développement de nouvelles investigations empiriques ainsi que de nouveaux développements théoriques. En termes d'élaboration de politiques, des implications pratiques peuvent être tirées des résultats de cette thèse. Résoudre les contraintes financières des PME est une préoccupation publique depuis des décennies, sachant qu'une partie de ces contraintes sont le résultat de la cognition de l'entrepreneur a des implications pour l'éducation entrepreneuriale. Les décideurs politiques intéressés à aider

les entrepreneurs peuvent prendre des mesures en matière d'éducation qui augmentent leur auto-efficacité ou, éventuellement, augmentent leur prise de conscience des biais cognitifs.

Les limites des études empiriques de cette thèse apportent de nouvelles perspectives pour de futures études. Tout d'abord, le caractère transversal des données que nous utilisons est compatible avec les difficultés à observer et à faire émerger des construits cognitifs. Cependant, cela signifie également que nos résultats sont corrélationnels et qu'aucune causalité ne peut être déduite des résultats. Les plans expérimentaux peuvent apporter de nouvelles informations concernant la causalité de la relation observée des variables étudiées. Deuxièmement, les données de pays distincts peuvent également améliorer la validité externe des résultats trouvés dans cette thèse.

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