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CONTRÔLE, FINANCEMENT ET CROISSANCE DES PETITES ET MOYENNES ENTREPRISES

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Introduction Générale

Lucas (1978) prédisait l'extinction des petites entreprises et l'avènement des grandes entreprises. Cependant, selon les études de l'INSEE[1], sur la décennie 1993-2003 en France, seules 2% des petites et moyennes entreprises (PME) sont devenues de grandes entreprises. Selon le même institut, c'est un fort dynamisme des très petites entreprises et des PME intégrées dans de grands groupes qui explique la croissance de l'emploi salarié en France, sur la période 1985-2000. Si les PME indépendantes sont moins dynamiques, c'est qu'elles subissent une tension constante entre indépendance et croissance. Cette thèse vise à le démontrer.

Les PME[2] indépendantes sont confrontées à des problèmes financiers spécifiques qui diffèrent sensiblement de ceux des PME intégrées dans de grands groupes d'entreprises. En effet, les grands groupes fournissent aux PME un cadre privilégié pour leur croissance car elles bénéficient de leurs moyens techniques et financiers. Les PME indépendantes, sur lesquelles se concentre cette thèse, regroupent les PME contrôlées par une personne physique et les groupes de PME[3]. Elles sont particulièrement sensibles aux asymétries d'information du fait de leur taille réduite, du manque d'information publique qu'elles délivrent, et de la nature spécifique des actifs sur lesquels repose leur croissance (capital humain, innovation).

[1] Voir notamment les études de Picart (2004) et Picart (2006).

[2] Une petite et moyenne entreprise (PME) est une entreprise dont la taille n'excède pas un certain seuil exprimé en termes d'emplois (250 équivalent temps plein), de chiffre d'affaires (50 millions d'euros) ou de total bilan (43 millions). Cerner le champ des PME suppose aussi de prendre en compte le degré d'autonomie de l'entreprise. En France, 49% des PME font partie d'un groupe d'entreprises, dont 18% d'un grand groupe et 1/3 d'un groupe de PME (Cayssials et al., 2007). Dès lors, les PME intégrées dans de grands groupes sont exclues du champ d'étude car les problèmes financiers auxquelles elles sont confrontées diffèrent sensiblement de ceux des PME indépendantes. Les PME indépendantes.

[3] Les groupes de PME sont des groupes contrôlés par une PME et dont le poids économique est celui d'une PME (Loiseau, 2001).

L'asymétrie d'information entre PME et investisseurs est à l'origine d'anti-sélection : les investisseurs sont dans l'impossibilité de juger de la qualité des opportunités d'investissement des PME, ce qui aboutit à un rationnement du financement offert (Stiglitz et Weiss, 1981). De plus, l'asymétrie d'information favorise l'aléa moral. Les investisseurs sont alors obligés de surveiller les actions menées par les PME ce qui accroît leur coût de financement (Jensen et Meckling, 1976). L'opacité informationnelle limite fortement l'accès des PME au financement externe (Gertler, 1988 ; Berger et al., 2001). Elle conduit les entreprises à préférer l'autofinancement, car l'accès au financement externe est interprété comme un signal de mauvaise qualité par les investisseurs extérieurs (Myers et Majluf, 1984). La capacité d'investissement des PME est donc étroitement liée à leur performance (Carpenter et Petersen, 2002).

Pour augmenter leur capacité de financement externe les PME peuvent développer des mécanismes de résolution des problèmes liés à leur opacité informationnelle. La mise en place d'une relation de long terme entre investisseur et PME permet d'atténuer les problèmes d'anti-sélection (Leland et Pyle 1977 ; Fama, 1985). L'interaction répétée dans le temps entre l'entreprise et l'investisseur permet à celle-ci de développer une réputation et de réduire les coûts d'agence liés à l'asymétrie d'information (Diamond, 1989). Cependant, cette situation crée *in fine* une dépendance de l'entreprise vis-à-vis de l'investisseur qui gagne en pouvoir de négociation sur les profits de l'entreprise et est en mesure d'extraire des rentes à ses dépens (Rajan, 1992). Alternativement, l'apport de fonds propres par la PME constitue un mécanisme de gouvernance qui favorise l'alignement d'intérêts entre PME et investisseurs extérieurs et réduit les problèmes d'aléa moral (Jensen et Meckling, 1976). Cependant, le « co-investissement » par l'entrepreneur a pour conséquence de limiter l'expansion de l'entreprise (Stulz, 2005). En effet, le financement familial est limité aux ressources de la famille et

coûteux pour l'entrepreneur, car il implique une sous-diversification de son patrimoine (Moskowitz et Vissing-Jorgensen, 2002 et Chen et al., 2009).

Problématique et questions de recherche

Cette thèse explore théoriquement et empiriquement l'interaction entre contrôle, accès au financement et dynamisme des PME. Cet objectif amène à étudier les stratégies financières et organisationnelles par lesquelles les PME concilient indépendance et croissance. Nous apportons notre contribution à cette interrogation par **quatre chapitres.** Le premier chapitre teste le lien entre intensité du contrôle familial et croissance des PME. Il souligne l'existence d'un comportement de croissance patient dans les PME. Une majorité de PME favorise davantage le potentiel de croissance à long terme plutôt que la croissance à court terme de la firme Le second chapitre développe un modèle théorique qui vise à expliciter les fondements de ce comportement patient. Le cadre théorique montre que la détention de réserves de liquidités est une stratégie financière permettant aux PME, dont les opportunités de croissance sont illiquides, de préserver leur potentiel de croissance. Les deux derniers chapitres se concentrent sur une stratégie de croissance particulière : la constitution d'un groupe de PME. Le troisième chapitre interroge l'efficacité de la constitution d'un groupe de PME comme stratégie organisationnelle de croissance. Le dernier chapitre traite des motivations de l'entrepreneur à adopter ce mode de croissance.

Organisation de la thèse

Les deux premiers chapitres étudient les conditions financières de la croissance des entreprises familiales. Le premier chapitre contribue au débat empirique sur le lien entre structure de propriété et performances dans les PME. Une partie de la littérature observe des résultats allant dans le sens de l'hypothèse de neutralité : la structure de propriété n'a pas d'influence significative sur les performances des PME (Charreaux, 1991 ; Bughin et Colot, 2008). Par contre d'autres études observent que les PME familiales tendent à être plus performantes que les PME familiales (Allouche et Amann, 1995 et 2008). Ce chapitre contribue à cette littérature en abordant la croissance des PME familiales qui est une dimension de la performance peu explorée, la littérature se concentre essentiellement sur le lien entre structure de propriété et rentabilité. A l'instar des travaux de Hirigoyen (1982), Mignon (2000) et Arrègle et al. (2004), les résultats du chapitre 1 indiquent qu'une proportion importante de PME familiales met davantage l'accent sur le potentiel de croissance à long terme plutôt que sur la croissance à court terme de la firme. Le second chapitre propose une formalisation théorique de ce comportement de croissance patient des PME familiales.

Le ***chapitre 1*** (adapté de Hamelin, 2010a[4]) interroge le lien entre intensité du contrôle familial et croissance économique des PME. Il s'agit d'une étude empirique sur échantillon de 34 915 PME familiales françaises sur la période 1998-2007, obtenu à partir de la base DIANE. Une PME familiale est une entreprise dont le chiffre d'affaires annuel est inférieur à 50 millions d'euros et dont le principal actionnaire est une personne physique[5]. Les PME détenues par d'autres sociétés sont donc exclues du champ de cette étude. L'échantillon est composé de petites entreprises matures : le chiffre d'affaires moyen de l'échantillon est de 3 millions d'euros et l'âge moyen de 16 ans. Les PME familiales se concentrent essentiellement dans les secteurs traditionnels : 54% des entreprises de l'échantillon se situent dans les secteurs des bâtiments et travaux publics et du commerce de proximité (voir tableau 0.1 en annexe 0.A). Seule une minorité des PME familiales (4%) sont localisées dans les secteurs des nouvelles technologies (activités scientifiques et information et communication).

L'intensité du contrôle familial est mesurée par la concentration de la propriété de l'entreprise par des actionnaires issus de la même famille. La concentration de la propriété par les familles est en moyenne de 63% dans l'échantillon (voir tableau 0.1 en annexe 0.A). Il existe d'importantes variations de la concentration de la propriété familiale en fonction des secteurs d'activité. Notamment, la concentration de la propriété familiale tend à être moins élevée dans les secteurs des nouvelles technologies. Les entreprises où le contrôle familial est important sont petites, légèrement plus âgées et moins dynamiques (voir tableau 0.2 annexe 0.A). Dans l'étude, nous distinguons les entreprises où le contrôle familial est minoritaire (propriété inférieure à 50%) de celles où il est majoritaire (supérieur à 50%). Au sein des entreprises à contrôle majoritaire, nous distinguons les entreprises à propriété concentrée

[4] Hamelin (2010a) a reçu un second « revise and resubmit » de la revue *European Journal of Political Economy*. L'article est actuellement en cours de modification.

[5] Certaines études sur les entreprises familiales intègrent aussi la dimension de la transmission pour définir l'entreprise familiale. Ainsi, une entreprise est familiale uniquement quant le dirigeant actuel est un descendant du fondateur de l'entreprise. D'autres études, vont encore plus loin et intègrent la notion de valeur familiale afin de distinguer les entreprises familiales des autres.

(concentration de la propriété de 100%) des entreprises à propriété dispersée (concentration de la propriété supérieure à 50% mais inférieure à 100%).

Les résultats soulignent l'existence d'une relation négative, bien que non-monotone, entre contrôle familial et croissance économique (mesurée par la croissance du chiffre d'affaires et le taux d'investissement) des PME familiales. Les entreprises à contrôle familial majoritaire sont moins dynamiques que les entreprises où la famille exerce un contrôle minoritaire. Au sein des entreprises à contrôle familial majoritaire, les entreprises à propriété concentrée sont plus dynamiques que les entreprises à propriété dispersée. Ces résultats sont robustes au type de méthode statistique utilisée (comparaison de moyennes, matrice de transition de taille et régression linéaire). La relation négative entre contrôle familial et croissance économique demeure lorsque l'on contrôle pour la localisation sectorielle, l'âge, la taille et la rentabilité économique des entreprises.

Ce chapitre explore ensuite les facteurs financiers explicatifs de la relation négative entre contrôle familial et croissance des PME. Comme la littérature en gouvernance d'entreprise le signifie, le contrôle familial a une influence significative sur la rentabilité des entreprises (Morck et al., 2005). En raison de son effet sur la rentabilité de l'entreprise, le contrôle familial influence la capacité d'autofinancement de l'entreprise. Or l'autofinancement est la principale source de financement des PME, donc le contrôle familial peut influencer indirectement la capacité de financement de l'entreprise de par son effet sur la rentabilité de la PME. Afin de tester cette hypothèse, nous développons une méthode originale fondée sur la notion de croissance soutenable. Le taux de croissance soutenable, défini par Higgins (1977), est le taux de croissance qui permet de ne pas dégrader la structure financière de l'entreprise (levier constant et aucun apport en capital). Nous le mesurons par le taux de croissance des fonds propres internes. L'analyse est centrée sur l'observation de l'effet du contrôle familial

sur l'écart entre le taux de croissance soutenable et le taux de croissance économique de l'entreprise (variable écart). Cette spécification permet de tester le lien entre contrôle familial et croissance en contrôlant la capacité de financement interne de l'entreprise. En effet, si le contrôle familial n'exerce pas d'effet significatif sur la variable écart, nous concluons que le lien entre contrôle familial et croissance est expliqué par l'effet du contrôle familial sur la rentabilité de l'entreprise. Les résultats indiquent que l'intensité du contrôle familial n'a pas d'effet significatif sur la variable écart dans les entreprises à contrôle majoritaire. Cela indique que les entreprises à propriété dispersée sont moins dynamiques que les entreprises à propriété concentrée du fait d'une moindre capacité d'autofinancement. Ce résultat est cohérent avec la littérature en gouvernance d'entreprise qui prédit une relation non-monotone entre concentration de la propriété et performance de l'entreprise (Shleifer et Vishny, 1997). Néanmoins, lorsque l'on contrôle pour la capacité de financement interne des entreprises, les entreprises à contrôle familial majoritaire demeurent moins dynamiques que les entreprises où la famille exerce un contrôle minoritaire. Pour expliquer cette relation, il faut prendre en compte le comportement de croissance des PME.

Le signe de l'écart entre taux de croissance soutenable et taux de croissance économique de l'entreprise permet de distinguer deux comportements de croissance des PME. D'une part, les entreprises dynamiques (40% de l'échantillon) dans lesquelles la croissance interne des fonds propres est plus faible que la croissance économique (écart négatif). D'autre part, les entreprises patientes dans lesquelles la croissance interne des fonds propres est plus élevée que la croissance économique de l'entreprise (écart positif). La croissance des PME dynamiques repose sur leur capacité à accéder à du financement externe. Afin d'éclairer le lien entre contrôle familial et accès des PME au financement externe, nous observons l'influence du contrôle familial sur l'écart entre taux de croissance soutenable et croissance économique dans les entreprises dynamiques. Cet écart sera d'autant plus faible que

l'entreprise est en mesure de lever du financement externe. Il ressort que dans les entreprises dynamiques le contrôle familial tend à accroître les contraintes de financement, notamment en raison de difficultés à procéder à des augmentations de capital. L'effet direct du contrôle familial sur la capacité de financement de l'entreprise explique en partie le lien négatif entre contrôle familial et croissance des PME.

Contrairement aux entreprises dynamiques, les entreprises patientes favorisent le renforcement de leurs fonds propres au détriment de la croissance de leur activité à court terme. Ces entreprises allouent une partie de leur autofinancement à la création de réserves de liquidités et à la diminution de leur endettement. Si le contrôle familial influence la propension de l'entreprise à adopter un comportement patient, cela peut expliquer la relation négative entre contrôle familial et croissance des PME. Par conséquent, nous testons, au moyen d'un modèle de régression logistique, l'influence du contrôle familial sur la probabilité de l'entreprise à adopter un comportement de croissance patient. Les résultats soulignent que le contrôle familial augmente la probabilité de la PME à adopter un comportement de croissance patient. L'adoption d'un comportement patient a pour conséquence de limiter le développement de l'entreprise à court terme et fournit une explication à la relation négative entre contrôle familial et croissance. Cependant, ce comportement permet aux PME de renforcer leurs fonds propres, et donc leur capacité de financement à plus long terme. Il s'agit d'une stratégie financière permettant à la PME de préserver son potentiel de croissance. Le chapitre 2 reprend théoriquement cette question.

Le ***chapitre 2*** développe un modèle théorique qui considère le rôle de la détention de liquidités, financées par fonds propres, dans le cycle de développement des PME. Il démontre comment les PME utilisent stratégiquement leurs réserves de liquidités afin de préserver leur potentiel de croissance. L'élaboration de ce modèle est non seulement motivée par l'observation que les PME détiennent davantage de réserves de liquidités que les grandes entreprises (Banque de France, 2009), mais aussi par les résultats du chapitre 1 qui montrent qu'une majorité des PME privilégient la croissance de leurs fonds propres à celle de leur activité.

Ce modèle s'inscrit dans le courant des récents modèles dynamiques de décisions de financement et d'investissement qui soulignent l'importance de la gestion des liquidités pour les entreprises subissant des difficultés à accéder au financement externe. D'une part, la détention de réserves de liquidités réduit la contrainte de liquidité de l'entreprise, augmentant sa capacité d'investissement future (Almeida et al., 2004). D'autre part, la constitution de réserves de liquidités réduit la volatilité des revenus de l'entreprise. Cette réduction limite les problèmes de sous-investissement pour les entreprises contraintes financièrement (Foot et al., 1993). Ces modèles soulignent l'existence d'un arbitrage inter-temporel entre investissement et constitution de réserves de liquidités. La constitution de réserves de liquidités réduit l'investissement à court terme mais peut être avantageuse si elle permet d'augmenter la capacité de financement de l'entreprise à long terme. Le modèle présenté dans le chapitre 2 développe cette intuition en construisant un cadre théorique qui prend en compte les caractéristiques financières spécifiques des PME.

L'hypothèse centrale du modèle est que les contraintes de financement des PME proviennent du caractère illiquide de leurs opportunités d'investissement. Du fait de l'opacité informationnelle des PME, il n'existe pas sur les marchés d'instruments de couverture du

risque PME. Les investisseurs sont dans l'impossibilité de transférer le risque lié à la détention de parts dans les PME. De la sorte, ils doivent internaliser la gestion de ce risque spécifique et supportent donc un risque d'illiquidité. Un modèle à deux facteurs de risque permet aux investisseurs d'évaluer l'investissement dans la PME (Froot et Stein, 1998). Le coût du financement externe de la PME dépend de la capacité des investisseurs à diversifier ce risque spécifique. La liquidité des opportunités de croissance des PME est mesurée par la covariance entre l'exposition au risque spécifique du projet de la PME et l'exposition du portefeuille de l'investisseur à ce risque. Plus cette covariance est élevée plus le coût marginal du financement de la PME augmente avec le montant des fonds levés. L'illiquidité des opportunités de croissance de la PME détermine donc la convexité du coût de financement.

Pour expliciter les fondements du rôle des réserves de liquidités dans la croissance des PME, nous modélisons le choix d'allocation de l'autofinancement. L'entrepreneur décide de la répartition de l'autofinancement entre investissement et constitution d'une réserve de liquidités. Cette décision initiale détermine le revenu intermédiaire dont dispose l'entrepreneur pour investir dans un futur projet d'investissement. Pour financer ce projet, la PME dispose des réserves de liquidités et du retour sur l'investissement initial, et peut lever des fonds auprès d'investisseurs extérieurs.[6] Cependant, lever des fonds a un coût qui varie en fonction de la liquidité des opportunités de croissance de la PME. Ce coût, supporté par l'entrepreneur, se traduit par une décote lors de l'émission d'actions par l'entreprise.

A la période initiale l'entrepreneur doit déterminer l'allocation des flux de trésorerie entre réserves de liquidités et investissement qui maximise sa richesse. Investir à la période initiale permet à la PME de disposer de plus de liquidités dans les bons états de la nature et favorise

[6] Le modèle se concentre sur le financement par fonds propres des PME. Ce choix est motivé par les caractéristiques du processus de croissance des PME. Les PME sont généralement confrontées à des seuils de croissance où il leur faut investir dans des actifs spécifiques, tels que l'innovation ou le capital humain. Du fait du manque de tangibilité et de l'horizon temporel étendu, le financement par fonds propres semble plus approprié. Cependant, le modèle peut aisément être étendu afin de prendre en compte le financement par dette.

dans ce cas la croissance à long terme de l'entreprise. Cependant, si les mauvais états de la nature se réalisent, il lui faudra lever plus de fonds externes. Cela augmente d'autant plus le coût de financement du second projet que les opportunités de croissances de la PME sont illiquides. Contrairement à l'investissement, les réserves de trésoreries sont insensibles aux réalisations des états de nature, elles permettent de réduire la volatilité des revenus de l'entreprise. Disposer de réserves de liquidités a d'autant plus de valeur pour l'entrepreneur que les opportunités de croissance de la PME sont illiquides et que la volatilité des revenus de l'entreprise est élevée.

Le modèle montre que constituer des réserves de liquidités permet aux PME, qui ont des opportunités de croissance illiquides, de préserver leur potentiel de croissance, car ces réserves réduisent leurs contraintes de financement futures. Le cadre théorique développé fournit une explication au comportement patient des PME et établit que ce comportement est rationnel et optimal en présence d'opportunités de croissance illiquides. Ce modèle aboutit à plusieurs prédictions empiriques sur le lien entre réserves de trésorerie, structure de propriété et liquidité des opportunités de croissance dans les PME. Selon le modèle, on devrait observer une corrélation négative entre réserve de liquidités et liquidité des opportunités de croissance des PME. De plus, l'adoption d'un comportement patient est influencée par les caractéristiques des investisseurs. Des investisseurs caractérisés par des portefeuilles d'actifs de grande taille et une compétence en gestion interne du risque seront plus en mesure de répondre aux demandes de financement des PME. Ainsi les entreprises dans lesquelles la concentration de la propriété familiale est élevée devraient avoir une propension plus importante à adopter un comportement de croissance patient, car les investisseurs familiaux sont moins en mesure de diversifier leurs portefeuilles d'actifs. Cette prédiction théorique est cohérente avec les résultats obtenus au chapitre 1.

Les chapitres 3 et 4 abordent la question de la croissance à travers la constitution de groupes de PME, c'est à dire des groupes d'entreprises contrôlés par une PME et dont le poids économique est celui d'une PME (Loiseau, 2001). Le nombre de PME affiliées à un groupe de PME a doublé en dix ans et 31% des PME françaises sont affiliées à un groupe de PME (Boccara, 1998 ; Nahmias, 2007; Cayssials et al., 2007). Ce sujet reste peu exploré, excepté par des études de cas qui soulignent que la formation de groupes de PME constitue un choix organisationnel facilitant la croissance (Iacobucci, 2002 ; Iacobucci et Rosa, 2005 ; Lechner et Leyronas, 2009). Par ailleurs, Kremp et Sevestre (2000) montrent que l'appartenance à un groupe facilite le financement des entreprises françaises. Cet avantage est plus marqué pour les entreprises appartenant à de grands groupes du fait de leur taille. Cependant, leurs résultats soulignent que la structure organisationnelle de l'entreprise (entreprise indépendante ou appartenant à un groupe) influe aussi sur son accès au financement.

Les deux chapitres apportent des contributions empiriques originales sur ce sujet en reconstituant les groupes de PME à partir des données de la base des liens financiers de Coface Services. Cette base recense de manière exhaustive les liens de propriété entre les entreprises françaises en 2005. Les groupes d'entreprises sont identifiés en se fondant sur l'application du critère du contrôle effectif (Chapelle et Szafarz, 2005). Les entreprises appartiennent au même groupe si l'entreprise en amont dans la chaîne de contrôle détient au moins 50% des parts de l'entreprise. Nous conservons dans l'échantillon uniquement les groupes dont le chiffre d'affaires agrégé est inférieur à 50 millions d'euros. Cette procédure d'identification nous permet de reconstituer plus de 15 000 groupes de PME. Les groupes de PME ont un chiffre d'affaires moyen de 10 millions d'euros. Il s'agit d'organisations de taille plus importante que les PME indépendantes. Ils sont localisés majoritairement dans les secteurs traditionnels des PME, mais tendent à être plus présents dans les secteurs des

nouvelles technologies (voir tableau 0.3 en annexe 0.B). Les groupes de PME ont, en moyenne, une structure de contrôle simple: une entreprise mère contrôle directement deux entreprises filles (voir tableau 0.4 en annexe 0.B). Cependant, 10% d'entre eux sont caractérisés par des structures de contrôle complexes où il existe un découplage entre droit de vote et de propriété. Par ailleurs, 2/3 des groupes de PME adoptent une stratégie de diversification sectorielle ou géographique et 10% sont structurés autour d'une holding. Les groupes diversifiés ont une structure de contrôle plus complexe et sont plus grands que les groupes non diversifiés (voir tableau 0.4 en annexe 0.B). Les entreprises appartenant à des groupes de PME se distinguent des entreprises indépendantes car elles sont en moyenne plus jeunes, plus grandes et plus dynamiques (voir tableau 0.5 en annexe 0.B). La structure de propriété des entreprises affiliées à un groupe de PME est concentrée : la propriété intégrée de l'entreprise mère dans les entreprises filles est, en moyenne, de 76%.

Le ***chapitre 3*** explore dans quelle mesure la création d'un groupe de PME est une stratégie organisationnelle qui favorise le développement des PME. La littérature sur les avantages et les coûts des groupes d'entreprises suggère que ces derniers sont une réponse organisationnelle efficace en présence d'inefficiences dans l'allocation du capital et dans le partage du risque (Leff, 1976 et 1978 ; Kock et Guillén, 2001). Les résultats empiriques sur le sujet confirment généralement cette hypothèse (Khanna et Yafeh, 2007). Cependant, ils se concentrent sur l'étude des effets de l'affiliation à un grand groupe d'entreprises et explorent les imperfections de marché au travers de variations des contextes institutionnels et financiers. Ce chapitre se propose d'étudier l'influence des asymétries d'information sur les avantages et les coûts de l'affiliation à un groupe de PME. Si les groupes de PME permettent de limiter les problèmes liés à l'opacité informationnelle des PME, alors ils peuvent avoir une influence

positive sur la croissance des PME. Ce chapitre s'interroge sur la capacité du groupe de PME à réduire les obstacles financiers à la croissance des PME.

Ce chapitre explore par quels canaux la constitution d'un groupe de PME influe sur la croissance des entreprises. La tête de groupe a accès à de l'information privée ce qui améliore sa capacité à évaluer la qualité des projets et réduit les problèmes d'anti-sélection (Alchian, 1969 ; Williamson, 1975). De plus, la tête de groupe se distingue des autres intermédiaires financiers car elle possède les droits de contrôle résiduel sur les actifs des entreprises du groupe. Ces droits de contrôle permettent à la tête de groupe de réduire les coûts de surveillance et lui donnent l'autorité et la flexibilité pour redéployer les actifs des projets sous performant (Gertner et al., 1994). Du fait de ces deux spécificités, les têtes de groupes sont plus à même d'allouer les ressources aux entreprises les plus performantes et d'améliorer l'efficience de l'allocation du capital en présence d'asymétries d'information (Stein, 1997). Cependant, cet effet bénéfique peut disparaître si le marché interne est utilisé afin de subventionner les entreprises du groupe les moins performantes (Scharfstein and Stein, 2000). Par ailleurs, les transferts internes entre entreprises du groupe peuvent être utilisés pour réduire la volatilité des revenus des entreprises du groupe ou pour soutenir celles qui subissent des difficultés financières passagères (effet d'assurance mutuelle). L'assurance mutuelle entre entreprises du groupe a plusieurs avantages. Elle limite le problème de sous-investissement, car elle permet de stabiliser les revenus des entreprises (Froot et al., 1993). Le soutien aux entreprises du groupe en difficultés réduit le risque de liquidation par la banque (Kim, 2004) et les chocs sur les ratios financiers de l'entreprise, ce qui augmente la capacité de financement externe de l'entreprise (Shamphantharak, 2007). Nous dégageons de la littérature deux hypothèses sur les canaux par lesquels la constitution d'un groupe de PME favorise la croissance des PME. D'une part, si les marchés internes des groupes de PME sont efficients, les entreprises affiliées à un groupe de PME sont plus rentables et bénéficient d'une capacité

d'autofinancement accrue. D'autre part, le mécanisme d'assurance mutuelle entre les entreprises du groupe permet d'améliorer l'accès au financement externe, notamment bancaire, des entreprises affiliées à un groupe.

Pour aborder ces questions, nous comparons les performances de 13 651 entreprises affiliées à des groupes de PME à celles de 10 869 entreprises indépendantes. Nous estimons, dans un premier temps, l'influence de l'affiliation à un groupe de PME sur la croissance des entreprises. Puis, nous étudions l'effet de l'affiliation à un groupe de PME sur la rentabilité de l'entreprise afin de tester l'hypothèse d'efficience des marchés internes des groupes de PME. Si le marché interne des groupes de PME est efficient, alors les PME affiliées à des groupes de PME devraient être plus rentables que les PME indépendantes. Enfin, nous observons l'effet de l'affiliation à un groupe de PME sur la variance de la rentabilité de l'entreprise afin de tirer des conclusions quant à l'existence d'assurance mutuelle entre les entreprises des groupes de PME. L'hypothèse d'assurance mutuelle est vérifiée si les entreprises affiliées sont en moyenne mois risquées que les entreprises indépendantes. Cette approche permet d'étudier les avantages de l'affiliation d'une entreprise à un groupe de PME, cependant elle n'apporte qu'un éclairage limité sur l'efficacité de la constitution d'un groupe de PME comme stratégie organisationnelle de croissance. En effet, il est délicat de tirer des conclusions sur cette question à partir de l'estimation des effets de l'affiliation à un groupe de PME. Cette approche pourrait aboutir à des conclusions erronées si l'effet observé de l'affiliation à un groupe de PME sur la croissance est lié au fait que les entreprises affiliées les plus petites sont les plus dynamiques. C'est pourquoi nous réalisons les mêmes estimations mais en comparant les groupes, en agrégeant les comptes des entreprises qui les composent, à des entreprises indépendantes de taille, d'âge et localisation sectorielle comparables. Enfin, la littérature souligne que les bénéfices et les coûts de l'affiliation à un groupe d'entreprises sont influencés par la stratégie de diversification du groupe. Afin de contrôler cet effet nous

réalisons l'ensemble des estimations en tenant compte de la stratégie de diversification du groupe (géographique, sectorielle, intégration verticale).

Les résultats obtenus montrent que la constitution d'un groupe de PME est une stratégie organisationnelle qui favorise à la fois la croissance des entreprises affiliées au groupe et la croissance globale du groupe. L'affiliation à un groupe de PME a un effet positif sur la rentabilité des PME, ce qui montre que l'allocation du capital par les têtes de groupes est efficiente. De plus, les groupes de PME sont plus rentables que les entreprises indépendantes comparables, ce qui indique qu'il n'y a pas de problèmes de sur-investissement dans les groupes de PME. Par contre, les résultats soulignent qu'il n'y a pas d'effet d'assurance mutuelle dans les groupes de PME. Les entreprises affiliées à un groupe de PME sont plus risquées (elles ont une variance de leur rentabilité plus élevée) que les entreprises indépendantes, tandis que les groupes de PME ont un niveau de risque équivalent à celui d'entreprises indépendantes comparables. Enfin, la prise en compte de la stratégie de diversification du groupe n'a pas d'influence sur les résultats. Globalement, le chapitre 3 montre que la constitution d'un groupe de PME est une stratégie organisationnelle qui favorise la croissance des PME. La constitution d'un groupe de PME permet d'améliorer la rentabilité des entreprises affiliées du fait de l'efficience du marché interne du groupe. Cela a pour conséquence d'augmenter la capacité d'autofinancement des PME affiliées à un groupe et favorise donc leur dynamisme.

Le ***chapitre 4*** (tiré de Hamelin, 2010b)[7] explore les motivations de l'entrepreneur à structurer son contrôle sous forme de groupe de PME. Ce chapitre teste deux hypothèses. D'une part, une hypothèse d'expropriation selon laquelle constituer un groupe d'entreprises permet d'augmenter les bénéfices privés du contrôle de l'entrepreneur. D'autre part, une hypothèse d'immunisation selon laquelle regrouper des PME est une stratégie permettant de réduire l'exposition du patrimoine de l'entrepreneur au risque de son activité.

Selon la littérature en gouvernance d'entreprise, la création d'un groupe d'entreprises permet à l'actionnaire contrôlant de financer la croissance tout en maintenant ses bénéfices privés du contrôle (Almeida et Wolfenzon, 2006). Un groupe est un montage organisationnel qui permet d'introduire un découplage entre propriété et contrôle. Ce découplage a une influence négative sur la rentabilité de la firme, car l'actionnaire contrôlant est incité à extraire des bénéfices privés au dépend des actionnaires minoritaires dans les entreprises où sa propriété est faible (Shleifer et Vishny, 1997). L'excès de contrôle a donc une influence négative sur la valeur de la firme. Les résultats obtenus sur de grands groupes d'entreprises valident très largement cette hypothèse (Morck et al., 2005). Cependant, la structure de l'actionnariat minoritaire dans les groupes de PME diffère sensiblement de celle des grands groupes. Dans les PME, les actionnaires minoritaires sont principalement des actionnaires connectés (tels que les membres de la famille), avec lesquels les relations sont fondées sur la confiance. L'entrepreneur n'a donc pas d'incitation à les exproprier. Il peut aussi s'agir d'investisseurs sophistiqués (tels que des sociétés de capital risque) qui ont des capacités de surveillance importantes. Leur participation au capital de l'entreprise limite fortement les possibilités d'extraction de bénéfices privés de la part de l'actionnaire contrôlant. Partant, il est possible d'être réservé quant à la validité de l'hypothèse d'expropriation dans les groupes de PME.

[7] Ce chapitre est actuellement sous presse pour le *Journal of Banking and Finance*.

Ce chapitre propose donc une hypothèse alternative à la motivation à fonder un groupe : l'hypothèse d'immunisation. Selon cette hypothèse, la structuration sous forme de groupe permet à l'entrepreneur de limiter l'exposition de son patrimoine au risque spécifique de son activité. Les entrepreneurs sont caractérisés par une importante confusion entre patrimoine professionnel et personnel (Moskovots et Vissing-Jorgenssen, 2002). La sous-diversification du patrimoine de l'entrepreneur crée une incitation à réduire l'exposition de leur richesse au risque spécifique de l'entreprise (Chen et al., 2009). La constitution d'un groupe de PME permet de réduire l'exposition du patrimoine de l'entrepreneur au risque spécifique de son activité via deux canaux. Premièrement, la création d'un groupe d'entreprises permet un « fractionnement de la responsabilité limitée ». En France, le principe de responsabilité limitée s'applique aux entreprises d'un groupe de sociétés. La constitution d'un groupe réduit les coûts de faillites de l'entrepreneur car elle introduit une option de liquidation partielle. Deuxièmement, les transferts internes peuvent être utilisés, non pour exproprier les actionnaires minoritaires, mais pour réduire le risque de défaut des entreprises dans lesquelles l'entrepreneur possède les intérêts financiers les plus importants. Au sein des groupes, il est possible de transférer de la valeur des entreprises filles afin de maintenir artificiellement la performance des entreprises en amont de la chaîne de contrôle quand celles-ci sont confrontées à des chocs économiques défavorables.

Ces deux hypothèses sont testées au moyen de plusieurs estimations sur un échantillon de 17 152 entreprises mères et filles appartenant à des groupes de PME. La variable explicative centrale de nos estimations est la distance au contrôle de l'entreprise. Les travaux empiriques sur les groupes utilisent généralement des mesures de séparation du contrôle et de la propriété. Dans l'étude, nous utilisons ces mesures (concentration de la propriété de l'actionnaire contrôlant et ratio de contrôle), et introduisons des variables de position. Les variables de position (position dans la chaîne de contrôle, statut de l'entreprise : mère, fille

ultime) indiquent la probabilité qu'une séparation entre contrôle et propriété soit introduite, et capturent la valeur de contrôle de l'entreprise. La valeur de contrôle de l'entreprise est liée au fait que la position de l'entreprise dans la chaine de contrôle détermine le montant des coûts de faillites supportés par l'entrepreneur en cas de défaut de l'entreprise.

Pour tester la validité de l'hypothèse d'expropriation, l'effet de la distance au contrôle sur la performance de l'entreprise (mesurée par sa rentabilité opérationnelle et sa rentabilité financière) est estimé. Si l'hypothèse d'expropriation est vérifiée, la distance au contrôle de la firme doit avoir une influence négative sur la rentabilité de l'entreprise. Nous observons ensuite les transferts internes au sein des groupes. Comme nos données ne nous permettent pas de mesurer directement ces transferts internes, nous utilisons la méthode proposée par Bertrand et al. (2002). Cette méthode consiste à étudier l'influence de la distance au contrôle sur la sensibilité de la performance de l'entreprise aux chocs au niveau de son secteur ou de son groupe. Les chocs sectoriels sont mesurés par la performance moyenne des entreprises d'un même secteur d'activité (classification en 60 secteurs). Les chocs au niveau du groupe sont mesurés par la moyenne des performances sectorielles des entreprises du groupe. Selon Bertrand et al. (2002), une plus faible sensibilité aux chocs indique que de la valeur est transférée de l'entreprise au bénéfice d'autres entreprises du groupe. Si l'hypothèse d'expropriation des actionnaires minoritaires est vérifiée, la sensibilité aux chocs des entreprises les plus distantes du contrôle devrait donc être plus faible. Cependant, la moindre sensibilité des entreprises proches du contrôle aux chocs peut aussi indiquer une volonté d'immunisation du patrimoine de l'entrepreneur. Pour explorer cette possibilité, nous développons une spécification économétrique afin de tester si l'effet de la distance au contrôle sur la sensibilité de la performance de l'entreprise aux chocs est influencée par le type de chocs subi (favorable ou défavorable). Des transferts des entreprises filles vers les entreprises mères en cas de chocs défavorables, mais non en cas de chocs favorables, indiquent que les

transfers au sein des groupes de PME ont pour objectif de limiter l'exposition du patrimoine de l'entrepreneur au risque de son activité.

Au regard des résultats obtenus, l'hypothèse d'expropriation n'est pas vérifiée dans les groupes de PME. La distance au contrôle a une influence positive sur la performance des entreprises. Par ailleurs, les transferts internes n'aboutissent pas à l'expropriation des actionnaires minoritaires. La distance au contrôle a une influence positive sur la sensibilité de la performance de l'entreprise aux chocs. Ce résultat indique que de la valeur est transférée des entreprises mères vers les entreprises filles. En moyenne, les entreprises mères subventionnent le développement des entreprises filles. Cependant, lorsque l'environnement économique est défavorable (choc négatif au niveau du secteur ou du groupe), les ressources sont transférées des entreprises filles vers les entreprises mères afin de maintenir artificiellement leur performance. En bref, les résultats montrent que la structuration sous forme de groupe de PME permet à l'entrepreneur de limiter l'exposition de son patrimoine au risque spécifique de son activité, tout en favorisant le développement des entreprises du groupe quand le contexte économique est favorable. La structuration sous forme de groupe de PME n'a pas pour objectif de maximiser les bénéfices privés de l'entrepreneur, mais constitue une stratégie de croissance qui lui permet de limiter ses coûts de faillite.

Annexes

Annexe 0.A : Description de l'échantillon des PME familiales

Tableau 0.1 : Caractéristiques des entreprises de l'échantillon par secteur d'activité

	Répartition	Chiffre d'affaires moyen en K€	Age moyen	Concentration de la propiété moyenne
Agriculture, sylviculture et pêche	0,64%	2714	15,94	69,47%
Industries extractives	0,16%	3518	26,65	63,14%
Industries agro-alimentaires	1,61%	4125	19,51	63,34%
Production et distribution d'éléctricité, de gaz et d'eau	0,52%	3168	15,87	60,41%
Industrie des biens de consommation	9,28%	2909	18,66	59,90%
Industrie automobile	0,42%	3343	17,19	62,70%
Industrie de biens intermédiaires	8,77%	3088	19,73	58,73%
Construction et travaux de construction	22,05%	2220	15,5	65,60%
Commerce de gros	5,38%	3973	14,82	64,90%
Commerce de détail	18,18%	3752	17,36	62,52%
Commerce, réparation d'automobiles et de motocycles	13,59%	3449	14,92	64,94%
Services de transport et d'entreposage	4,41%	3215	17,13	64,53%
Hébergement et restauration	1,98%	1971	13,42	60,70%
Information et communication	2,57%	2955	13,18	54,33%
Activités financières et d'assurance	1,64%	2550	14,01	62,31%
Activités immobilières	0,92%	2890	17,82	58,17%
Activités spécialisées, scientifiques et techniques	4,38%	2560	12,58	54,79%
Services à la personne	0,36%	1903	14,45	59,51%
Services aux entreprises	3,12%	2863	14,08	61,25%
TOTAL	**34915**	**3044**	**16,27**	**63%**

Tableau 0.2: Distribution de l'échantillon en fonction de la concentration de la propriété familiale

Concentration de la propriété	Répartition	Chiffre d'affaires moyen en K€	Age Moyen	Croissance du chiffre d'affaires
<33%	13,85%	3955	15,55	12,62%
>=33% et <50%	17,61%	2642	13,75	12,86%
>=50 et <66%	29,69%	3175	18,97	7,50%
>=66% et <100%	21,35%	3110	15,87	10,19%
=100%	17,50%	2420	15,32	10,34%

Annexe 0.B : Description de l'échantillon des groupes de PME

Tableau 0.3 : Répartition sectorielle des groupes de PME

	Répartition
Agriculture, sylviculture et pêche	0.77%
Industries extractives	0.40%
Industries agro-alimentaires	3.07%
Production et distribution d'éléctricité, de gaz et d'eau	0.83%
Industrie des biens de consommation	6.15%
Industrie automobile	0.59%
Construction et travaux de construction	11.16%
Commerce de gros	4.80%
Commerce de détail	18.37%
Commerce, réparation d'automobiles et de motocycles	8.61%
Services de transport et d'entreposage	5.41%
Hébergement et restauration	3.01%
Information et communication	5.04%
Activités financières et d'assurance	3.83%
Activités immobilières	3.02%
Activités spécialisées, scientifiques et techniques	6.65%
Services aux entreprises	4.66%
TOTAL	**15877**

Tableau 0.4 : Caractéristiques des groupes de PME en fonction de leur stratégie de diversification et de l'existence d'une séparation de la propriété et du contrôle dans le groupe

	Tous les groupes	Pas diversifiés	Diversifiés	Structure de propriété simple	Structure de propriété complexe
Nombre d'entreprises	3	2,25	3,35	2,32	4,78
Nombre de niveaux	2,14	2,03	2,19	2	3,27
% de groupes avec une holding tête de groupe	10,42%	3,10%	13,87%	10,61%	8,70%
Nombre de départements	2,14	1	2,89	1,72	2,7
Nombre de secteurs	2,28	1	2,2	2,19	4,55
Chiffre d'affaires moyen en K€	9880	8034	10915	9106	17896
Nombre d'observations	15877	5094	10783	14279	1598

Tableau 0.5 : Caractéristiques des PME appartenant à des groupes de PME

		Entreprises de groupes de PME		
	Entreprises indépendantes	Total	Mères	Filles
Chiffre d'affaires moyen en K€	4603	6430	5133	6762
Age moyen	16,89	15,81	21,67	14,32
Taux de croissance moyen du chiffre d'affaires	9,99%	15,34%	16,51%	15,04%
Droit de propriété intégré de la tête de groupe moyen				76,09%
Nombre d'observations	10869	17152	3495	13657

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Chapter 1

Family control, financing capacity and small business growth. Evidence from French SMEs.[8]

This chapter uses a very large sample of French small family businesses to study the relationship between the intensity of family control and small business growth. Specifically, we explore the external and internal financing capacity effects of family control on small business growth. The results show a negative, although non-monotonic, relationship between family control and SME economic growth. We observe that the non-monotonic influence of family control on SME growth arises from the negative effect of the separation between control and ownership on firm performance. The results support that the negative relationship between family control and firm growth depends of firm growth behavior. In dynamic firms, family control hampers small business growth, because it limits firm external financing capacity, particularly firm access to external equity. However, the intensity of family control also affects negatively small business growth because it increases the probability that small business favors the growth of its equity over the short-term growth of their activity, they adopt a patient growth behavior.

Keywords: Small business; Family control; Growth; Financing capacity; Sustainable growth.

[8] This chapter builds on previous research Hamelin (2010a) that is under revision after receiving two positive "revise and resubmit" from the *European Journal of Political Economy*.

1.1 Introduction

The Lisbon process emphasizes the role that small and medium enterprises (SMEs) play in the innovation, employment, and dynamism of European economies.[9] The World Bank argues that SMEs enhance competition and entrepreneurship and hence have external benefits on economy-wide efficiency, innovation, and aggregate productivity growth.[10] However, academics have a more mitigated view of the economic benefits of SMEs. Although there is a strong positive association between the importance of the SME sector and per capita GDP growth, the data do not strongly support the conclusion that SMEs exert a causal impact on growth (Beck et al., 2005a). Whereas an SME sector characterized by dynamic and innovative entrepreneurial businesses affects positively the economy, there are strong doubts about the beneficial effects of a large SME sector characterized by SMEs that are neither able to grow nor to exit (Beck and Demirgüç-Kunt, 2006). Understanding the factors determining small business dynamism is therefore a key issue in SME studies.

Access to finance is one of the main limiting factors of SME dynamism. Information asymmetries are likely to be especially large for both young and small firms. Therefore, these firms need to establish long-term relationship with suppliers of finance or to co-invest with external investors, which imposes a strong constraint on their external financing capacity (Berger and Udell, 1998; Gertler, 1988). Schiffer and Weder (2001), using the World Business Environment Survey[11], report that perceived financing obstacles are higher for small firms than for large firms. Using the same data, Beck et al. (2006) show that firm size, age

[9] Communication of the EU Commission, "Europe 2020, A European strategy for smart, sustainable and inclusive growth," 3.3.2010 COM (2010) 2020.
[10] See International Finance Corporation, member of the World Bank group, publications (http://www.ifc.org/sme).
[11] A major cross-sectional, firm-level survey conducted in 80 developed and developing countries in 1999 led by the World Bank.

and ownership structure are the main determinants of financing obstacles. A large body of literature focuses on the influence of financial development and institutional environment on small businesses access to finance and on their dynamism (Beck et al., 2005b; Cull et al., 2006; Ayyagari et al., 2007; Laeven and Woodruff, 2007; Beck et al., 2008). This literature reports that small firms benefit disproportionately from higher levels of protection of property rights, which increases their access to external finance. The caveat with the approach used in this literature is that it focuses only on country-level determinants of small businesses growth. This leaves a gap in the literature that this chapter fills by proposing a firm-level approach to the determinants of small businesses dynamism. We focus on the effect of the intensity of family control on firm financing capacity, to understand the relationship between family control and SME growth.

We are not the first to explore the effect of family control on SME growth. Empirical evidence on the subject is contrasted. Daily and Dollinger (1992) and Daily and Thompson (1994) observe no significant influence of family ownership on US small businesses growth. Gallo et al. (2004) find no mean difference between family and non-family firm growth in a sample of Spanish SMEs. Mahérault (2000) examines 50 French-listed and non-listed firms and finds that family businesses prefer to forgo development rather than lose autonomy. Rutherford et al. (2006) observe, in a sample of US small businesses, that family net worth invested into firms has a negative influence on firm growth. Oswald et al. (2009) show that family involvement has a negative influence on firm profitability and growth. However, this literature is limited in several ways. First, samples are rather small, limiting the generalization of the findings. Second, these studies rely on self-reported financial data, which may lead to reporting bias. Finally, these studies often limit their analysis to the use of descriptive statistics for their analysis. We contribute to this literature and attempt to remedy some of its

shortcomings, using a large sample of French family SMEs. Further, we extend this analysis, by exploring the interaction between family control, firm financing capacity, and small business growth.

This chapter focuses on the effect of family control on SME economic growth. In particular, we explore how the influence of family control on firm financing capacity shapes SME growth. On the one hand, family control restricts external firm financing capacity, as it constitutes an endemic financing constraint. Family control limits firm external financing to debt and family resources. On the other hand, family control indirectly affects firm financing capacity through its influence on firm performance, which determines firm internal financing capacity. When firms face financing constraints, they rely heavily on internal resources to finance growth. In the presence of financial constraints, only well performing firms are able to grow and firm investment is sensitive to firm performance (Carpenter and Petersen, 2002). The empirical literature on large family businesses shows that family control significantly affects firm performance (Morck et al., 2005). Therefore, if family control affects firm performance, it will also influence firm internal financing capacity and therefore its growth.

The aim of this study is to disentangle the external and internal financing capacity effect of family control on SME growth. To explore how family control affects small business growth, we generate a large sample containing 34 915 French family SMEs, for which accounting and ownership data is available over the period 1998–2007. In the study family firms are defined as firms where the main shareholder is an individual or a family. First, we investigate the effect of family control on firm economic growth, using several methodologies (comparison of means, size transition matrices, regression analysis). Second, we test whether the influence of family control on firm growth relates to the indirect effect of family control on firm financing capacity. To explore this issue, we develop an original methodology

grounded on the concept of sustainable growth (Higgins, 1977). This permits us to test whether family control continues to affect firm growth when controlling for firm internal financing capacity. Finally, we distinguish dynamic firms from patient firms. Dynamic firms have an economic growth rate higher than the internal growth rate of equity, thus their economic growth depends on their ability to raise external financing. On the contrary patient firms have an economic growth rate lower than the internal growth rate of equity. Such firms forgo short-term growth in order to strengthen their financial structure by increasing their cash reserves or diminishing their debt leverage. Then, we estimate, for dynamic firms, whether family control limits firm access to external finance. This setting allows us to test if family control hampers SMEs external financing capacity. Further, we observe whether family control influences firm probability to adopt patient growth behavior, which could also explains the relationship between family control and SMEs economic growth.

The results show that there is a negative, although non-monotonic, relationship between family control and small business economic growth. The results also support the notion that the non-monotonicity of the relationship between family control and firm growth arises from the negative influence of the separation between control and ownership on firm performance, which affects firm internal financing capacity. The results further show that the explanation of the negative relationship between family control and SME growth depends of firm growth behavior. In dynamic firms, the results corroborate that the negative relationship between family control and SME growth relates to the fact that family control hampers firm external financing capacity, particularly its access to external equity. However, we observe that a majority of small businesses adopt patient growth behavior and that the probability of adopting such behavior increases with family control. This also explains why we observe a negative relationship between family control and growth.

The rest of this chapter proceeds as follows. Section 1.2 reviews the literature and develops the hypotheses. In Section 1.3, we present the data and methodology. Section 1.4 develops the results on the influence of family control on firm growth. Finally, Section 1.5 sets forth our conclusions.

1.2 Literature and hypothesis

According to the literature, family control can affect firm growth in two ways. Family control can influence firm growth in that it restricts firm external financing capacity to debt financing and family wealth (1.2.1). Second, family control can affect firm growth because it impacts firm performance, which determines firm internal financing capacity (1.2.2).

1.2.1 Family control, external financing capacity, and growth

According to the static tradeoff approach, firms should invest until the marginal cost of financing equals the marginal gain from investing. If family control influences the cost of external financing, it may in turn affect firm growth.

There is no consensus as to whether family control increases firms difficulty in accessing debt financing. The inherent informational opacity of small businesses limits their ability to raise external funds (Berger et al., 2001). Small firms must, therefore, pay higher interest rates or they cannot obtain preferred loan amounts. Indeed, information asymmetries create moral hazard issues that raise concerns about risk-shifting behavior. According to Jensen and Meckling (1976), shareholders have incentives to expropriate creditors by shifting toward riskier projects. This situation led commercial banks to anticipate higher monitoring and

screening costs. Such anticipated costs result in higher risk premiums, which in turn increase the cost of debt financing. Moreover, lack of transparency creates an adverse selection effect and a narrowing of the credit market (Stiglitz and Weiss, 1981). Family control might exacerbate moral hazard and adverse selection issues because of lower transparency, higher private benefits of control and managerial entrenchment. However, the characteristics of firms where family control is concentrated (under-diversified family holdings, the desire to pass the firm onto subsequent generations, and reputational issues) suggest that the divergence of interests between family shareholders and creditors is lower. Anderson et al. (2003) find support for this hypothesis in a sample of 252 large US industrial firms. These authors observe that the cost of debt financing for large family firms is about 32 basis points lower than for non-family firms.

Whether family control influences firms access to debt remains an unresolved empirical question, but as family control increases firms do bear an endemic constraint on their ability to raise external equity. On the one hand, high level of family control might result from a refusal of an outside increase in equity capital, implying a dilution of family control (Ang et al., 1995). On the other hand, family control might result from institutional imperfections: reduced investor protection limits outside investors willingness to invest. Family taste for independence or the lack of protection of outside investors imposes a constraint on the financing of new projects of SMEs with high levels of family control. As family control increases infusion of equity by family members become the main source of external equity.

Control concentration affects the cost of capital for family members. Indeed, holding large stakes in a firm reduces the ability of insiders to diversify their wealth, which increases their wealth exposure to firm risk (Bebchuk, 1999). Several studies on US entrepreneurs document that owners of private companies invest almost half of their net worth in the private equity of

the business (Moskowitz and Vissing-Jørgensen, 2002; Gentry and Hubbard, 2004; Mueller, 2008). Ødegaard (2009) observes that entrepreneur wealth under-diversification increases with control concentration. The under-diversification of family-owner wealth violates Fisher's theorem (1930) of separation between investment and consumption decisions. When under-diversification occurs, family business owners act both as a producer, and as a household making consumption decisions, which increases the cost of capital (Miao and Wang, 2007; Chen et al., 2009). The empirical literature largely supports this. Brennan and Torous (1999) use the certainty equivalent method, and estimate that the loss in investing in only one public firm is 64% on average for a time horizon of 10 years and a risk aversion coefficient of 2. Himmelberg et al. (2002) study the impact of the idiosyncratic risk borne by controlling shareholders, proxied by ownership concentration, on firm cost of capital. These authors document, in a sample of 38 countries for the period 1988–1998, a positive correlation between inside equity ownership and the marginal return to capital. This correlation arises because there is a risk premium that reflects insider exposure to idiosyncratic risk. Heaton and Lucas (2004), using the hurdle rate method, find that the hurdle rate required to invest in private firms is 10% higher than that required for public investment.

Therefore, the extent to which entrepreneur wealth is under-diversified affects firm investment behavior, by increasing firm cost of equity. Stulz (2005) develops the notion of co-investment: the amount of investment needed by the controlling shareholder to set up a firm or to exploit investment opportunities. When corporate insiders co-invest, their portfolios are over-weighted in firm equity. Co-investment by controlling shareholders results from institutional imperfections: the "twin agency problem,"[12] which increases ownership concentration at the equilibrium. On the one hand, the twin agency problems create a direct

[12] The twin agency problem arises from agency problems related to corporate insiders (private benefits of control / investor protection) and state rulers expropriation.

link between savings and investment: co-investment limits investment to the entrepreneur's resources. On the other hand, co-investment increases entrepreneur cost of capital; controlling shareholders bear more risk for a given expected return than they would otherwise. Therefore, co-investment by the entrepreneur limits investment. John et al. (2008) examine, in 39 countries for the 1992–2002 period, the relationship between shareholder rights (which influences ownership concentration) and investment. These authors observe that investment is positively associated with shareholder rights; they conclude that shareholder portfolio under-diversification has a negative influence on firm investment. Given that family control increases firm owners' wealth under-diversification, we expect family firm external financing capacity to be limited. Therefore, family control might hamper SME growth, because it limits firm access to external financing, particularly to external equity.

1.2.2 Family control, internal financing capacity, and growth

Alternatively, family control can also influence firm internal financing capacity, which ultimately affects firm growth. A large body of literature reports that family control impacts significantly firm performance, which influences firm internal financing capacity.

Theoretically, the influence of family control on firm performance is a controversial issue. Large shareholders have strong incentives to maximize firm value (Jensen and Meckling, 1976) and have incentive to collect information and oversee managers (Shleifer and Vishny, 1986). However, ownership concentration by the manager leads to entrenched behavior, as the manager faces no market competition (Demsetz, 1983; Fama and Jensen, 1983). Moreover, large shareholders may use their control to extract private benefits at the expense of minority shareholders, which is detrimental to firm performance (Shleifer and Vishny, 1997). Finally, inefficiency may also arise from the passing of control from one generation to

the next. Indeed, there is a potential source of inefficiency that arises from the difference in skills and management talents between heirs and their parents (Burkart et al., 2003; Caselli and Gennaoli, 2003).

Empirical studies do not allow drawing conclusions on the influence of family control on firm performance. Several authors find that family ownership can be detrimental to minority shareholders (Faccio et al., 2001; Conqvist and Nilsson, 2003; Barth et al., 2005; Bertrand et al., 2008). Conversely, there is also evidence of a positive relationship between family control and firm performance (Anderson and Reeb, 2003; Sraer and Thesmar, 2007; Andres, 2008; King and Santor, 2008). Finally, several studies point out that the relationship between family ownership and firm performance is non-monotonic. When family ownership is low, increased ownership concentration is beneficial to firm performance, because of higher monitoring incentives. Further ownership concentration is detrimental to firm performance, because it favors the extraction of private benefits. Finally, high levels of ownership limit the private benefits that can be extracted at the expense of minority shareholders, which is beneficial to firm performance (Maury, 2006; Mueller and Spitz-Oener, 2006). Studies that consider the issue of succession generally observe that the maintenance of management within the family has a negative impact on firm performance (Morck and Yeung, 2003; Schulze et al., 2003; Pérez-González, 2006; Villalonga and Amit, 2006; Bennedsen et al., 2007; Cucculelli and Micucci, 2008). However, there is also evidence of a significant positive effect from past succession on firm performance (McConaughy et al., 1998; Fernández and Nieto, 2005; Zahra, 2005; Diwisch et al., 2009). Overall, the empirical evidence points out that family control influences significantly firm performance. Although the empirical evidence is quite conflicting, we expect family control to non-monotonically influence firm performance, and thus firm internal financing capacity.

1.3 Data and methodology

This section presents the sample (1.3.1), the construction of the family control variables (1.3.2) and the methodology (1.3.3).

1.3.1 Sample selection

This study use a very large sample, in which all relevant information is available for 34 915 French family SMEs,[13] over the 1998–2007 period. The data come from the DIANE database, provided by COFACE Services and Bureau van Dijk, and contain two types of information: all balance sheets and results, account information, and information about the ownership structure, in particular the type, name and share-holdings of the main shareholders.

Because this study focuses on small businesses, we exclude firms with annual sales higher than 50 million Euros[14] and lower than 750 000 Euros.[15] Family SMEs are firms where the main shareholder is an individual, thus we exclude all the firms where the dominant shareholder is another firms. Then, we maintain in the sample only firms incorporated either in SA or SARL, firms for which the limited liability regime applies. We also exclude firms for which information about ownership structure is lacking and firms that are controlled by another firm.[16] Following common practice, we exclude observations for which we do not have the required information and for which there is incoherent balance sheet information (such as negative total assets). Finally, given that we compute growth rates, sample firms must be in the panel for at least two consecutive years. In order to avoid survivorship bias we

[13] The sample represents one-third of SMEs with a turnover higher than 750,000 € listed by the Banque de France (2009). We use the study of the Banque de France in order to check the external validity of our sample.
[14] We choose the threshold of 50 million Euros of turnover, in accordance with the European Commission definition of SME.
[15] We exclude micro firms because of the poor reliability of micro-firm accounting data. We choose the threshold of 750 000 Euros in order to have the same study perimeter as the studies of the Banque de France (2009).
[16] We exclude all firms where the main shareholder is a firm.

maintain in the sample firms for which we do not have accounting information over all the period. Thus, the sample comprises firms that did not survive along the period and firms that did not existed at the beginning of the period.

1.3.2 Ownership structure variables

The initial information contained in the DIANE database consists of the names and shareholdings of the main shareholders. To obtain the concentration of family ownership in the firm, we sum the percentage of a firm's shares held by shareholders having the same family name, for each firm.[17]

In contrast with ownership, there is no agreement in the literature over the notion of control. Authors agree on the fact that control relates to ownership concentration, which increases the probability of being the controlling shareholder; but they disagree on the threshold of ownership needed to control the firm. Therefore, we distinguish firms according to the intensity of family control. The **Family** variable is a dummy variable that takes the value 1 when family ownership stakes in the firm are higher than 50%, and zero otherwise. To explore the plausible non-monotonic effect of family ownership, we distinguish firms that are controlled at majority by a family (where family equates as 1) according to the intensity of family control. **Majority control**: this variable takes the value 1 if the family owns more than 50% but less than 100% of firm shares. **Total control**: this variable takes the value 1 if the family owns 100% of firm shares.

[17] This approach under evaluates the share of a family, as members of the family that do not have the same name (as son in law, for example) are excluded. However, this operation was made for each firm, therefore it is really unlikely that family ownership shares are over-estimated. This information is only available for the last year the firm is in the panel.

The descriptive statistics, reported in Table 1.1, underline the high concentration of ownership in sample firms: on average families own 62% of a firm shares, and 69% of sample firms are controlled at a majority by families.

1.3.3 Methodology

To explore the relationship between family control and firm growth, we use economic growth, measured by firm average[18] sales growth and investment rate over the period 1999–2007.[19] Table 1.1 indicates that, on average, firm sales growth rate is 10,23% and firm investment rate is 8,56%. Moreover, Panel B shows that SMEs controlled by a family at majority grow significantly less than firms where the family only exerts a minority control. In order to investigate the relationship between family control and firm economic growth at the aggregate level, we employ two methodologies. We compare average economic growth rates over the study period, according to the intensity of family control, and use size transition matrices. Size transition matrices report firm odds of migrating to a higher size class.[20] The odds ratio, between year t and year t+1, measures the number of companies that have changed of size class in year t+1, divided by the number of companies that have not.

To explore the relationship between family control and firm growth at the individual level, we estimate equation 1.1:

$$EconomicGrowth_i = \beta_1 + \beta_2 Family_i + \beta_3 Size_i + \beta_4 Age_i + \beta_5 ROA_i + Industry_i + \varepsilon_i \quad (1.1)$$

[18] We use average growth value because the growth process of SMEs is rather more discrete than linear. Indeed, SMEs do not grow for several periods, and then do grow when they have accumulated sufficient resources to do so.

[19] We define all variables in Appendix 1.A.

[20] Size classes are defined following the recommendation of the EU Commission that distinguishes SMEs into three class sizes: micro firms that have an annual turnover lower than 2 million Euros, small firms, whose turnover is between 2 and 10 million Euros, and medium firms, whose turnover is between 10 and 50 million Euros.

To conclude on the issue of the relationship between family control and firm growth, we interpret the sign of β_2. We introduce several control variables that also influence firm economic growth. According to traditional corporate finance theory, if there are no frictions with respect to accessing financing, the only factor remaining to influence firm investment and growth is the quality of its growth opportunities. The traditional measure to assess firm growth opportunities is the Tobin's Q: the ratio of the firm's capitalization and book debt to its book value. Because it is not possible to compute Tobin's Q for private firms, we use firm industry location[21] and firm performance to proxy for firm growth opportunities. We measure firm performance via operating performance (ROA)[22], because this measure is not affected by firm amortization and capital structure policy. Equation 1.1 also controls for firm age and size. It is important to control for firm age because it influences firm economic growth in several ways. Firm age reduces firm informational opacity, which alleviates financial constraints (Beck et al., 2006). However, older firms might grow less, because they have attained their optimal size or operate in more mature markets. The effect of firm size on firm growth is a controversial issue. The Gibrat (1931) law states that growth is proportional to size and that the factor of relationship is random. Gibrat's law has generated substantial research. Some studies find that growth rates are independent of size, others that Gibrat's law is applicable only to large organizations, and finally some studies observe that growth rates diminish with increasing size (Evans, 1987; Wagner, 1992; Sutton, 1997). Furthermore, firm size increases firm capacity to access external financing (Beck et al., 2006). In our sample, SMEs controlled by a family at majority are significantly older than firms where the family only exerts a minority control. Firms in the sample are quite small, and firm size decreases with the intensity of family control, SMEs controlled by a family at majority are significantly

[21] Because this study focuses on small business, we can reasonably assume that industry dynamism influences firm growth opportunities more than the actual structure of the market.
[22] The ROA is the ratio of the firm EBITDA on firm total assets.

smaller than firms where the family only exerts a minority control. Sample firms have, on average, a ROA of 11,66%, and firms controlled by a family at majority significantly under-perform relative to firms where the family only exerts a minority control (see Table 1.1). Finally, sample firms are located in traditional SME industries (e.g., construction and trade activities).[23]

Next, we test whether the relationship between family control and firm growth arises from the influence of family control on firm internal financing capacity. To explore this issue, we observe how family control influences small businesses propensity to exploit the growth potential afforded by their internal financing capacity. To assess this growth potential, we compute the firm's sustainable growth rate: the maximum rate at which a firm can grow without altering its financial structure. The sustainable growth rate is the rate of economic growth that maintains unchanged firm debt leverage and avoids increasing the ownership share of outside shareholders (Higgins, 1977). To compute the firm sustainable growth rate we use the firm growth rate of retained earnings. Sample firms have, on average, an elevated sustainable growth rate (27%), and SMEs controlled by a family at majority have significantly lower internal financing capacity over the study period (see Table 1.1). In order to assess firm propensity to exploit the growth potential afforded by its internal resources, we compute the wedge between firm sustainable growth rate and economic growth rate (**Gap** variables).

To explore whether the relationship between family control and firm growth results from the effect of family control on firm internal financing capacity, we estimate equation 1.2.

$$GAP_i = \beta_1 + \beta_2 Family_i + \beta_3 Size + \beta_4 Age + \beta_5 ROA + \beta_7 Leverage + Industry_i + \varepsilon_i \quad (1.2)$$

[23] See appendix 1.B for the industry distribution of sample firms.

Given that sustainable growth assumes that the firm keeps its debt leverage constant, equation 1.2 controls for the firm financial leverage. Descriptive statistics, reported in Table 1.1, indicate that, on average, firm capital structure is balanced between debt finance and equity, and that there is no significant differences between the capital structure according to firm intensity of family control. The analysis focuses on β_2; if the negative relationship between family control and firm growth only results from family control effect on firm internal financing capacity we expect β_2 to be insignificant.

To explore the interaction between family control, firm external financing capacity and growth, we split up the sample according to the signs of the gap variables. When gap variables are positive, the firm growth rate of internal equity is higher than its economic growth rate; such firm is qualified as patient firms. When gap variables are negative, the firm economic growth rate is higher than its growth rate of internal equity; such firm is qualified as dynamic firms. Dynamic firms lever their internal financing capacity to raise additional external financing resources to finance their economic growth, thus their economic growth rate depends on their capacity to raise external financing. To explore whether family control limits SME growth because it affects firm external financing capacity, we estimate equation 1.2 for the subsample of dynamic firms. If family control limits firm access to external financing, then β_2 should be positive for this subsample.

Table 1.1: Sample descriptive statistics

Panel A reports the principal descriptive statistics for the variables used in the study. Panel B reports mean comparisons according to the intensity of family control: *** indicates that means difference t-test is significant at the 1% level, ** at the 5% level, and * at the 10% level.

PANEL A	Number of observations	Mean	Median	Standard Deviation	Maximum	Minimum
Turnover growth rate	34915	10,23%	6,02%	0,2334	4,4857	-0,9310
Investment rate	34915	8,56%	6,89%	0,3215	4,9259	-0,9874
Family ownership	34915	6254%	5100%	28,61	100,00	0,52
Age	34915	16,27	12,00	12,27	157,00	2,00
Size (Turnover K€)	34915	3044	1709	3996	48185	750
Size (Total Asset K€)	34915	1729	867	4633	310787	73
ROA	34915	11,66%	10,12%	0,0997	1,8189	-0,2225
Financial Leverage	34915	105,47%	38,68%	5,3658	687,0000	0,0000
Sustainable growth rate	34915	27,58%	20,74%	0,5372	5,3621	-4,8961

PANEL B	Majority family control	Minority family control	Difference	
Number of observations	23931	10984		
Turnover growth rate	9,37%	12,10%	-0,0273	***
Investment rate	7,03%	11,88%	-0,0485	***
Family ownership	7603%	3315%	42,8750	***
Age	17,0690	14,5460	2,5230	***
Size (Turnover K€)	2962,3000	3220,5000	-258,2000	***
Size (Total Asset K€)	1653,7000	1892,6000	-238,9000	***
ROA	0,1152	0,1196	-0,0044	***
Financial Leverage	106,56%	103,10%	0,0346	
Sustainable growth rate	0,2673	0,2943	-0,0270	***

Finally, we explore whether the negative relationship between family control and SME growth relates to the fact that firms that family control increases firm propensity to forgo short-term economic growth to strengthen its capital structure. We estimate equation 1.3, where the dependent variable is firm probability to be a patient firm, using a logistic estimation method.

$$\Pr(Patient = 1)_i = \beta_1 + \beta_2 Family_i + \beta_3 Size + \beta_4 Age + \beta_5 ROA + \beta_7 Leverage + Industry_i + \varepsilon_i \quad (1.3)$$

We interpret a positive β_2 as evidence of the fact that family control favors the adoption of patient growth behavior.

1.4 Results

First, we present evidence on the relationship between family control and firm growth (1.4.1). Second, we test whether the relationship between family control and firm growth results from family control effect on firm internal financing capacity (1.4.2). Finally, we distinguish between dynamic and patient firms and explore the influence of family control on these growth behaviors (1.4.3).

1.4.1 Family control and small business growth

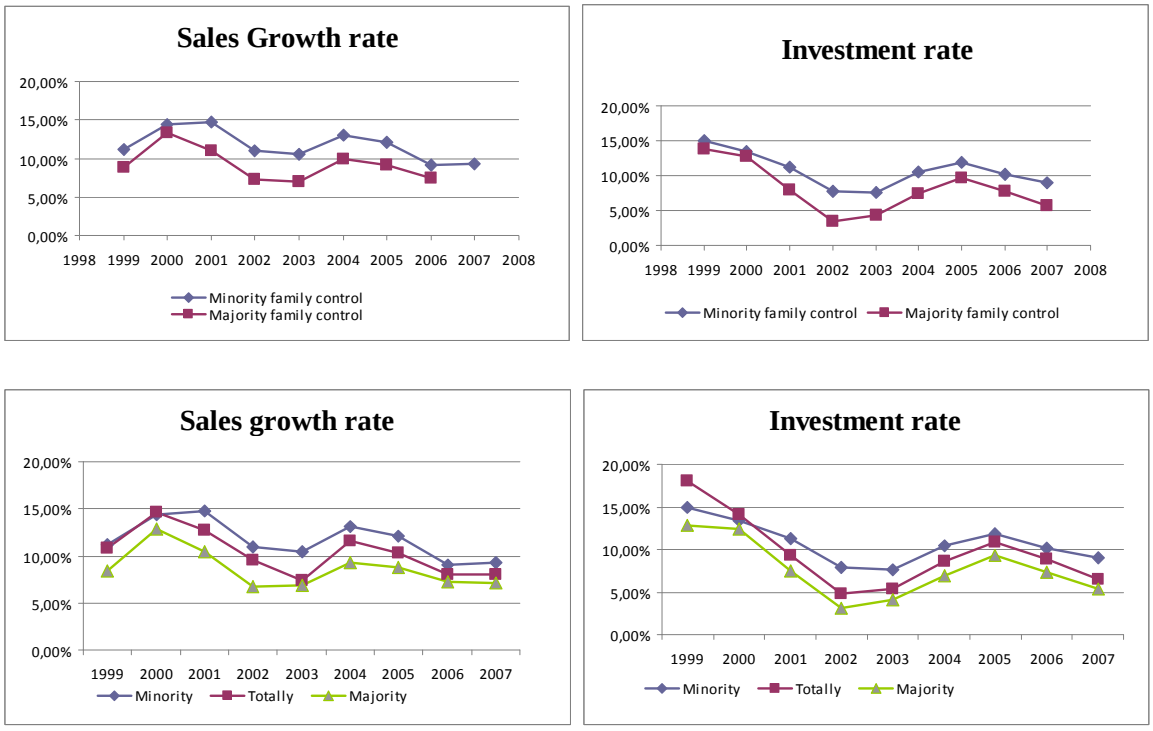
This section explores the relationship between family control and firm economic growth. Both aggregate and firm-level estimations indicate a negative, although non-monotonic, relationship between family control and firm growth.

1.4.1.1 Aggregate evidence

Graphical evidence (Figure 1.1) underlines that firms that are controlled at a majority by the family have, on average, lower economic growth than firms where the family only exerts a minority control. The negative relationship between family control and firm economic growth is structural in nature. Indeed, family control influences negatively firm growth across all years of the study period. Panel A of Table 1.2 confirms that firms that are controlled at a majority by the family grow significantly less than firms where the family only exert a minority control. The results also show that firms that are controlled at a majority by the

family have less volatile growth: the average standard deviation of their economic growth is significantly lower than that of firms where the family only exerts a minority control. Finally, we observe that the relationship between family control and firm growth is non-monotonic. Firms that are entirely family-controlled grow significantly more than those that are majority-controlled. These results hold when annual growth rates are used.

Figure 1.1: Average annual economic growth rates according to firm type over the period 1999-2007



The results presented in Table 1.3 show that firms that are controlled at a majority by the family have a lower probability to migrate toward a higher class size than firms where the family only exerts a minority control, both in a given year and on average over the period. This result confirms the negative relationship between family control and small business

growth. The results in panel B indicate that the probability of migrating toward a higher-class size is similar for both totally and majority-controlled firms.

Table 1.2: Economic growth according to the intensity of family control

This table reports the mean of average and annual growth rates and the mean standard deviation of these growth rates over the study period according to the intensity of family control. Panel A reports means difference, computed on the complete sample, between firms controlled at a majority by a family and controlled at a minority ones. Panel B reports means difference, computed in the firms controlled at a majority by a family sample, between totally and majority-controlled firms. *** indicates that the t-test of means difference is significant at the 1% level, ** at the 5% level, and * at the 10% level.

Panel A	**Majority family control**	**Minority family control**	**Difference**	
Average Sales Growth rate	0,121	0,0937	0,0273	***
Average Investment rate	0,118	0,0703	0,0477	***
Annual Sales Growth rate	0,1350	0,1084	0,0265	***
Annual Investment rate	0,1179	0,0906	0,0273	***
Standard deviation of Sales Growth rate	0,2477	0,2108	0,0369	***
Standard deviation of Investment rate	0,4268	0,3851	0,0418	***

Panel B	**Totally family controlled**	**Majority family controlled**	**Difference**	
Average Sales Growth rate	0,1082	0,0859	0,0223	***
Average Investment rate	0,0878	0,0609	0,0269	***
Annual Sales Growth rate	0,1200	0,1022	0,0178	***
Annual Investment rate	0,1025	0,0842	0,0183	***
Standard deviation of Sales Growth rate	0,2164	0,2089	0,0074	**
Standard deviation of Investment rate	0,3943	0,3820	0,0124	**

Overall, aggregate evidence suggests a negative relationship between family control and firm economic growth. Moreover, the results indicate that this relationship is non-monotonic: totally family-controlled firms are more dynamic than majority-controlled ones.

Table 1.3: Size transition matrices according to the intensity of family control

This table reports firms' odds ratio, which measures the number of companies that have changed group size in year t+1, divided by the number of companies that have not. Panel A compares the odds ratio for firms where families exert a minority control and firms where family exert a majority control. Panel B compares the odds ratio, in the subsample of firms where family exert a majority control family.

Panel A	Majority family control	Minority family control	Total
2000	8,13%	7,42%	7,62%
2001	7,50%	6,68%	6,91%
2002	7,09%	5,79%	6,15%
2003	6,95%	5,90%	6,20%
2004	8,53%	6,51%	7,10%
2005	8,03%	7,06%	7,35%
2006	7,80%	7,00%	7,24%
2007	9,87%	7,81%	8,44%
Average	7,99%	6,77%	7,13%

Panel B	Majority family control	Minority family control	Total
2000	7,26%	8,06%	7,42%
2001	6,90%	5,94%	6,68%
2002	5,93%	5,32%	5,79%
2003	6,00%	5,56%	5,90%
2004	6,37%	6,96%	6,51%
2005	7,03%	7,15%	7,06%
2006	6,91%	7,29%	7,00%
2007	7,82%	7,79%	7,81%
Average	6,78%	6,76%	6,77%

1.4.1.2 Firm-level evidence

The results presented in Table 1.4 confirm the negative relationship between family control and firm economic growth, at the firm level. This negative relationship holds for the two alternative measures of economic growth. Panel B shows that within firms that are controlled at a majority by the family, totally family-controlled firms are more dynamic than majority-controlled ones. This confirms the non-monotonic relationship between family control and SME growth. The results hold when we control for firm age, size and industry location (see Columns 3 and 4); however, the economic significance of the effect of family control on firm growth diminishes. This result underlines that part of the negative relationship between family control and firm growth relates to firms that are controlled at a majority by the family specific industry location in low-growth industries.[24]

[24] In Appendix 1.B, we present the distribution of firms across industries, along with industry average growth rates.

Table 1.4: Firm-level evidence on the relationship between family control and firm economic growth

This table reports the results of the estimation of equation 1 using OLS, where ε is the error term. ***Economic Growth*** is the average sales growth or investment rate for firm i. ***Family*** is the dummy variable, which takes the value 1 when the family holds more than 50% of firm shares. ***Totally*** is a dummy variable, which takes the value 1 when family ownership is 100%, and 0 when family ownership is higher than 50% but lower than 100%. ***Industry*** includes 19 dummy variables; transportation is the industry of reference. ***Age*** is the number of years since firm creation. ***Size*** is the log of firm total assets in the last year for which accounting information is available. ***ROA*** is the firm average operating profitability. We realize the estimation on two samples: the complete sample (Panel A) and a subsample containing only firms where family exert a majority control (Panel B). *** indicates that the coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level. We report standard errors of coefficients estimation in italics under each coefficient.

	(1)		(2)		(3)		(4)		(5)		(6)	
Panel A	Sales Growth		Investment rate		Sales Growth		Investment rate		Sales Growth		Investment rate	
Family control	-0,0273	***	-0,0485	***	-0,0191	***	-0,0217	***	-0,0191	***	-0,0217	***
	0,0026		*0,0037*		*0,0026*		*0,0036*		*0,0026*		*0,0036*	
Age					-0,0050	***	-0,0047	***	-0,0048	***	-0,0045	***
					0,0001		*0,0001*		*0,0001*		*0,0001*	
Size					0,0096	***	0,0063	***	0,0117	***	0,0079	***
					0,0015		*0,0021*		*0,0015*		*0,0021*	
ROA									0,1807	***	0,1417	***
									0,0122		*0,0173*	
Intercept	0,1210		0,1188	***	0,1812	***	0,2135	***	0,1425	***	0,1832	***
	0,0022		*0,0030*		*0,0114*		*0,0161*		*0,0116*		*0,0165*	
Industry dummies	No		No		Yes		Yes		Yes		Yes	
R2	0,0051		0,0031		0,0910		0,0514		0,0967		0,0532	
F	178,53	***	108,05	***	165,83	***	89,67	***	169,30	***	88,8	***
Nb observations	34915		34915		34915		34915		34915		34915	

	(1)		(2)		(3)		(4)		(5)		(6)	
Panel B	Sales Growth		Investment rate		Sales Growth		Investment rate		Sales Growth		Investment rate	
Totally	0,0204	***	0,0250	***	0,0095	***	0,0111	**	0,0080	***	0,0102	**
	0,0031		*0,0044*		*0,0030*		*0,0044*		*0,0030*		*0,0044*	
Age					-0,0045	***	-0,0045	***	-0,0043	***	-0,0043	***
					0,0001		*0,0002*		*0,0001*		*0,0002*	
Size					0,0053	***	0,0068	***	0,0072	***	0,0080	***
					0,0017		*0,0024*		*0,0017*		*0,0024*	
ROA									0,1945	***	0,1208	***
									0,0140		*0,0204*	
Intercept	0,0878	***	0,0609	***	0,1752	***	0,1882	***	0,1370	***	0,1644	***
	0,0016		*0,0022*		*0,0126*		*0,0183*		*0,0128*		*0,0187*	
Industry dummies	No		No		Yes		Yes		Yes		Yes	
R2	0,0013		0,0007		0,0924		0,0512		0,0996		0,0526	
F	31,94	***	16,92	***	115,55	***	61,27	***	119,93	***	60,16	***
Nb observations	23931		23931		23931		23931		23931		23931	

Firm characteristics (age and size) also significantly affect firm growth. There is a positive and significant relationship between firm size and firm economic growth. This positive influence of firm size on growth can be explained either via technological argument (economy of scope, market power) or by the fact that firm size facilitates firm access to external financing (Beck et al. 2006). Firm age negatively influences firm growth, which is quite intuitive: as firms get older, they are closer to their stationary size and thus stabilize their growth rate. This effect of firm age on firm growth dominates the positive effect of firm age related to easier access to external financing. Finally, when we control for firm performance (proxied by firm ROA), family control still influences negatively firm growth. The results show that firm ROA has a strong effect on firm growth (see Columns 5 and 6). Indeed, a 1% increase in firm operating performance levers the firm sales growth rate by 0,18%, and the firm investment rate by 0,14%.

This section shows that the negative relationship between family control and firm growth persists when controlling for firm growth opportunities, proxied by firm industry location and performance. Furthermore, we observe that the relationship between family control and SME growth is non-monotonic: totally family-controlled firms are more dynamic than majority-controlled ones. This result is consistent with corporate governance theory, which points out the negative impact of the separation between control and ownership on firm performance (Shleifer and Vishny, 1997).

1.4.2 Family control, financing capacity and small business growth

In order to disentangle the internal and external financing capacity effect of family control on firm growth, we explore how family control influences firm propensity to exploit the growth potential afforded by its internal financing resources.

The results, set forth in Table 1.5, underline that family control affects positively gap variables. For the same level of internal resources, firms controlled at a majority by a family tend to grow less. Contrary to what we observe for economic growth rates, the relationship between the gap variables and family control is monotonic. The results in Panel B indicate that gap variables are highest for totally family-controlled firms. The results presented in Table 1.5 do not support the notion that the negative relationship between family control and SME growth relates solely to the negative effect of family control on firm internal financing capacity. However, the results show that the non-monotonic relationship between family control and firm growth results from the fact that the separation between control and ownership adversely affects firm internal financing capacity.

The signs of the control variables are consistent and stable across specifications. Firm size has a non-significant effect on the sales gap and a positive impact on the investment gap, and firm age has a negative influence on gap variables. Firm operating performance has a positive effect on gap variables. Firms that lever less their internal financing capacity (higher gap values) under invest relative to other firms, which results in higher returns to capital. Finally, firm leverage has a negative effect on gap variables; indeed, firms with greater access to external financing are more able to lever their internal financing capacity.

Table 1.5: The influence of family control on firm propensity to exploit the growth potential afforded by internal financing capacity

This table reports the results of the estimation of equation 2 using OLS, where ε is the error term. ***GAP*** is the wedge between firm sustainable growth rate and sales growth rate or investment rate for firm i. ***Family*** is the dummy variable, which takes the value 1 when the family holds more than 50% of firm shares. ***Totally*** is a dummy variable, which takes the value 1 when family ownership is 100%, and 0 when family ownership is higher than 50% but lower than 100%. ***Industry*** includes 19 dummy variables; transportation is the industry of reference. ***Age*** is the number of years since firm creation. ***Size*** is the log of total firm assets in the last year for which accounting information is available. ***ROA*** is average firm operating profitability. ***Bank Leverage*** is the ratio of firm financial debt to equity. The estimation is realized on two samples: the complete sample (Panel A) and a subsample containing only firms where family exert a majority control (Panel B). *** indicates that the coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level. We report standard errors of coefficient estimation in italics under each coefficient.

	(1)		(2)		(3)		(4)		(5)		(6)	
PANEL A	Sales Growth		Investment rate		Sales Growth		Investment rate		Sales Growth		Investment rate	
Family	0,0195	***	0,0215	***	0,0195	***	0,0219	***	0,0192	***	0,0227	***
	0,0061		*0,0067*		*0,0060*		*0,0066*		*0,0060*		*0,0066*	
Size (ltotal asset)	-0,0019		0,0018		0,0042		0,0099	***	0,0066	*	0,0121	***
	0,0035		*0,0038*		*0,0035*		*0,0039*		*0,0035*		*0,0038*	
Age	-0,0052	***	-0,0055	***	-0,0046	***	-0,0047	***	-0,0048	***	-0,0049	***
	0,0002		*0,0003*		*0,0002*		*0,0003*		*0,0002*		*0,0003*	
ROA					0,5292	***	0,6757	***	0,5294	***	0,6899	***
					0,0448		*0,0495*		*0,0448*		*0,0494*	
Bank leverage									-0,0062	***	-0,0055	***
									0,0005		*0,0006*	
Intercept	0,1495	***	0,1144	***	0,0332		-0,0088		0,0337		-0,0120	
	0,0269		*0,0297*		*0,0275*		*0,0303*		*0,0275*		*0,0303*	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0,0196		0,0168		0,0295		0,0260		0,0337		0,0292	
F statistics	33,20	***	28,36	***	46,17	***	40,50	***	50,49	***	43,65	***
Number of observations	34915		34915		34915		34915		34915		34915	

	(1)		(2)		(3)		(4)		(5)		(6)	
PANEL B	Sales Growth		Investment rate		Sales Growth		Investment rate		Sales Growth		Investment rate	
Totally	0,0223	***	0,0199	**	0,0184	**	0,0154	*	0,0173	**	0,0148	
	0,0074		*0,0082*		*0,0074*		*0,0082*		*0,0074*		*0,0081*	
Size (ltotal asset)	0,0045		0,0033		0,0091	**	0,0099	**	0,0109	***	0,0119	**
	0,0041		*0,0045*		*0,0041*		*0,0046*		*0,0041*		*0,0046*	
Age	-0,0053	***	-0,0053	***	-0,0047	***	-0,0046	***	-0,0050	***	-0,0048	***
	0,0003		*0,0003*		*0,0003*		*0,0003*		*0,0003*		*0,0003*	
ROA					0,4881	***	0,6461	***	0,4869	***	0,6610	***
					0,0524		*0,0580*		*0,0524*		*0,0581*	
Bank leverage									-0,0051	***	-0,0047	***
									0,0005		*0,0006*	
Intercept	0,1256	***	0,1103	***	0,0272		-0,0022		0,0292		-0,0035	
	0,0310		*0,0343*		*0,0316*		*0,0350*		*0,0316*		*0,0350*	
Industry dummies	Yes		Yes		Yes		Yes		Yes		Yes	
R2	0,0244		0,0202		0,0330		0,0292		0,0369		0,0323	
F	28,44	***	23,4200	***	35,43	***	31,2600	***	38,04	***	33,1300	***
Number of observations	23931		23931		23931		23931		23931		23931	

Overall, the results indicate that family control reduces firm propensity to lever the growth potential afforded by internal financing capacity. However, the explanation of this result is twofold. If gap variables are positive, firms forgo short-term economic growth to strengthen their capital structure; that is, they adopt patient growth behavior. If gap variables are negative, firms resort to external financing for growth, and higher values for gap variables support that firms face more difficulties to raise external financing. To explore the relationship between family control and SME growth behavior, we split the sample according to the sign of the gap variables.

1.4.3 Family control and SME growth behavior

In dynamic firms (Table 1.6), we observe a positive relationship between family control and gap variables. This indicates that family control limits the extent to which firms lever their internal financing capacity to finance growth.[25] The results support, for dynamic firms, the notion that family control undermines firm growth, because it limits firm access to external equity. Further, columns 3 and 4 shows that there is no significant difference between totally and majority family-controlled firms. This indicates that firms that are controlled at a majority by the family, independently of the intensity of family control, suffer from difficulties in accessing external financing.

[25] Given that, for dynamic firms the gap variables are negative, an increase in gap variables indicates that the wedge between economic growth and sustainable growth is lower. We interpret a positive coefficient as support for the fact that firms grow less because they are less able to lever their internal growth capacity by accessing external financing.

Table 1.6: Influence of family control on gap variables in dynamic firms

This table reports the results of the estimation of equation 2 using OLS, in which ε is the error term. ***GAP*** is the wedge between firm sustainable growth rate and sales growth rate or investment rate for firm i. ***Family*** is the dummy variable, which takes the value 1 when the family holds more than 50% of firm shares. ***Totally*** is a dummy variable, which takes the value 1 when family ownership is 100%, and 0 when family ownership is higher than 50% but lower than 100%. ***Industry*** includes 19 dummy variables; transportation is the industry of reference. ***Age*** is the number of years since firm creation. ***Size*** is the log of firm total assets in the last year for which accounting information is available. ***ROA*** is average firm operating profitability. ***Bank Leverage*** is the ratio of firm financial debt to equity. Specifications 1 and 2 report the estimation on the complete sample of dynamic firms. Specifications 3 and 4 report the estimation on the subsample containing only dynamic firms where family exert a majority control. *** indicates that the coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level. We report standard errors of coefficient estimation in italics under each coefficient.

	Full Sample				Firms controlled at a majority by a family			
	(1)		(2)		(3)		(4)	
	Gap Sales		Gap Investment		Gap Sales		Gap Investment	
Family	0,0356	***	0,0374	***	0,0091		-0,0044	
	0,0083		*0,0088*		*0,0104*		*0,0110*	
Size	0,0149	***	0,0318	***	0,0366	***	0,0432	***
	0,0048		*0,0050*		*0,0056*		*0,0060*	
Age	0,0042	***	0,0055	***	0,0032	***	0,0049	***
	0,0003		*0,0004*		*0,0004*		*0,0004*	
ROA	-0,2328	***	-0,1943	***	-0,1898	***	-0,1742	**
	0,0589		*0,0621*		*0,0687*		*0,0728*	
Bank leverage	-0,0058	***	-0,0048	***	-0,0045	***	-0,0038	***
	0,0005		*0,0005*		*0,0005*		*0,0005*	
Intercept	-0,6396	***	-0,7741	***	-0,7145	***	-0,8063	***
	0,0372		*0,0393*		*0,0427*		*0,0452*	
Industry dummies	Yes		Yes		Yes		Yes	
R2	0,0913		0,0686		0,0938		0,0739	
F statistics	61,19	***	44,83	***	42,46	***	32,74	***
Number of observations	14638		14638		9867		9867	

Control variables are stable and consistent across specifications. Size and age have a positive influence on gap variables. Such variables normally limit firm financial constraints, thus they should have a negative influence on gap variables. However, age has a negative influence on firm growth (see Section 1.4.2), which could drive this positive influence on gap variables. The positive influence of size may be related to the fact that larger small businesses benefit from greater internal financing capacity, which reduces their need for external financing. Firm operating performance has a negative influence on gap variables; this

indicates that good performances increase firm access to external financing. Finally, firm leverage logically affects gap variables negatively, because higher leverage levels indicate easier access to external financial resources. In brief, the results support that, in dynamic firms, family control constitutes a barrier to lever firm internal financing capacity, because it limits firm capacity to raise external financing, particularly external equity. The results in Table 1.6 provide support to the hypothesis that family control affects adversely SME growth, because it limits their external financing capacity.

However, the results also underline that a majority of SMEs (58%) prefer to forgo short-term economic growth to strengthen their capital structure, they adopt patient growth behavior. Patient firm managers calibrate patient firms' growth; they do not invest all firm cash flow. Table 1.7 shows that firms that are controlled at a majority by the family are more prone to adopt patient behavior than are firms where the family only exerts a minority control. The results also underline that more highly performing firms are more prone to adopt such a behavior, which arises from the fact that highly performing firms have higher internal financing capacity. Bank leverage and firm age undermine the probability that firms adopt patient growth behavior. This indicates that patient firms are SMEs that have greater difficulty in accessing external financing.

Table 1.7: Family control influence on the probability for firm to adopt patient growth behavior

This table reports the results of the estimation of equation 1.3, using a logistic estimation method, in which ε is the error term. The probability modelled is the probability that prudent is equal to 1. ***Patient*** is equal to 1 when both gap variables are positive. ***Family*** is the dummy variable, which takes the value 1 when the family holds more than 50% of firm shares. ***Industry*** comprises 19 dummy variables; transportation is the industry of reference. ***Age*** is the number of years since firm creation. ***Size*** is the log of total firm assets in the last year for which accounting information is available. ***ROA*** is average firm operating profitability. ***Bank Leverage*** is the ratio of firm financial debt to equity. *** indicates that the coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level. We report standard errors of coefficients estimation in italics under each coefficient.

	(1)		(3)		(6)		(11)	
Family	0,0903	***	0,1026	***	0,1068	***	0,1300	***
			0,0237		0,0239		0,0242	
Size (ltotal asset)			0,0053		0,0447	***	0,0531	***
			0,0135		0,0138		0,0140	
Age			-0,0131	***	-0,0095	***	-0,0103	***
			0,0010		0,0010		0,0010	
ROA					3,3174	***	3,6430	***
					0,1903		*0,1987*	
Bank leverage							-0,0493	***
							0,0056	
Intercept	0,2641	***	0,3246	***	-0,1819	*	-0,0007	
	0,0124		*0,1053*		*0,1088*		*0,1111*	
Industry dummies	No		Yes		Yes		Yes	
Number of observations	34915		34915		34915		34915	
Likelihood Ratio	15	***	435	***	871	***	1187	***
Score	15	***	436	***	844	***	1080	***
Wald	15	***	429	***	820	***	1078	***
c	0,5100		0,5660		0,6000		0,6150	

Overall, this section shows that it is possible to distinguish SMEs according to their growth behavior. On the one hand, dynamic SMEs use their internal financing resources to access external financing. These firms have economic growth dynamism higher than their internal financing capacity. On the other hand, the results underline that the majority of small businesses (58%) adopt patient growth behavior; they prefer to forgo short-term economic growth to strengthen their capital structure. In brief, the results show that limited access to external financial resources is not the only factor limiting the growth of SMEs that are controlled at a majority by a family. In dynamic firms, family control hampers firm growth

because it limits the sources of external financing. SMEs that are controlled at a majority by the family do not fully compensate for the lack of external equity by resorting to more debt financing. However, for a large fraction of firms that are controlled at a majority by the family, reduced dynamism derives from the fact that they are more likely to adopt patient growth behavior.

1.5 Conclusion

This chapter explores the concomitance of family control and small business growth in a large panel of French SMEs over the period 1998–2007. First, we show that there is a negative, although non-monotonic, relationship between family control and SME economic growth. Our results indicate that the non-monotonicity of this relationship is attributable to the negative effect of the separation between control and ownership on firm performance, which limits the firm's internal financing capacity. The results further show that the negative relationship between family control and SME dynamism arises from two alternative explanations. For dynamic firms, we show that this negative relationship is explained by the fact that family control limits firm capacity to raise external financing, particularly equity financing. However, the results also underscore that family control negative relationship with SME growth also arises from the fact that firms that are controlled at a majority by the family are more likely to adopt patient growth behavior.

The results presented in this chapter lead to several recommendations on small business growth policies. Following the results, policies aimed at improving small business dynamism should consider firm type (patient or dynamic). For dynamic SMEs, policies should focus on providing better access to financing, particularly external equity financing. Before designing policies to foster the dynamism of patient firms, it is necessary to assess the factors that lead to the adoption of such behavior. Small business patient growth behavior is consistent with a strategy of internal risk management in the presence of future external financing constraints. We develop this issue in Chapter 2.

Appendices

Appendix 1.A: Description of variables

Table 1.8: Explanatory variables

		Variable	Formula	Definition
Explicative variables	Family Control	***Family***		Is equal to 1 if family ownership shares in the firm are higher than 50%, ande to 0 else.
		Totally		Is equal to 1 if family ownership shares in the firm are equal to 100%, and 0 else. This variable only concerns family firms.

Table 1.9: Explained variables

		Variable	Formula	Definition
Explained variables	Economic Growth	***Sales Growth***	$SalesGrowth_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{Turnover_{i,t}}{Turnover_{i,t-1}} - 1$	Average annual growth rates of sales.
		Investment Rate	$InvestmentRate_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{ProductiveAssets_{i,t}}{ProductiveAssets_{i,t-1}} - 1$	Average growth rate of productive assets. Where productive assets is the sum of gross long term assets and working capital minus financial assets.
	Sustainable Growth		$SustainableGrowth_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{InternalEquity_{i,t}}{InternalEquity_{i,t-1}} - 1$	The sustainable growth rate is influenced by the firm financial performance and distribution policy. The financial performance is measured by the return on equity (ROE): the ratio of net income to firm total assets. But, it is not possible to compute firm retention rate because the information is not correctly filled in the database. Thus, the sustainable growth rate is computed as the average growth rate of internal equity over the period. Where internal equity is the wedge between firm total equity and the face value of equity.
	Gap	***Sales Gap***	$GapSales_i = SustainableGrowth - SalesGrowth_i$	It is the wedge between firm sustainable growth rate and firm sales growth rate.
		Investment Gap	$GapInvestment_i = SustainableGrowth - Investment$	It is the wedge between firm sustainable growth rate and firm investment rate.
	Patient			It is equal to 1 when both sales gap and investmentgap are positive, and to 0 else. When patient is equal to 0 firms are considered as financially constrained firms,

Table 1.10: Control variables

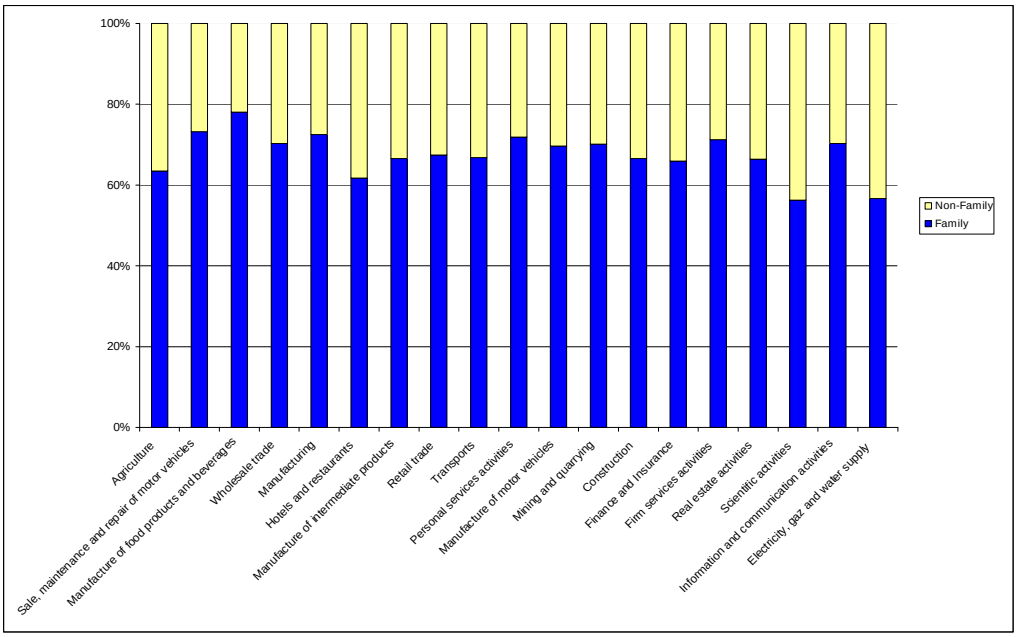
		Variable	Formula	Definition
Control Variables	Firm characteristics	***Size***		Log of firm total assets minus financial assets.
		Age		Log of the number of years since the firm's creation.
	Growth opportunities	***Industry***		Dummy variable indicating whether a firm belongs to a particular industry in the 19 industry classification sheme (similar to NACE classification).
		ROA	$ROA_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{EBITDA_{i,t}}{TotalAsset_{i,t}}$	Return on asset computed as the ratio of earnings before tax, interest and depreciation (EBITDA) to total firm assets.
	Financial	***Financial Leverage***	$FinacialLeverage_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{ExternalFinancialDebt_{i,t}}{Equity_{i,t}}$	Ratio of firm external financial debt to equity. To compute external debt we substract from financial debt from firms which hold capital in the firm.

Appendix 1.B: Sample repartition by industry

Table 1.11: Sample repartition across industries and industry-average economic growth rates

INDUSTRY	Repartition	Sales Growth	Investment
Agriculture	0,64%	9,12%	4,46%
Mining and quarrying	0,16%	13,52%	11,20%
Manufacture of food products and beverages	1,61%	8,86%	7,06%
Electricity, gaz and water supply	0,52%	22,57%	20,77%
Manufacturing	9,28%	10,46%	8,98%
Manufacture of motor vehicles	0,42%	14,45%	9,36%
Manufacture of intermediate products	8,77%	11,12%	8,17%
Construction	22,05%	15,38%	14,47%
Wholesale trade	5,38%	9,64%	7,26%
Retail trade	18,18%	12,51%	11,18%
Sale, maintenance and repair of motor vehicles	13,59%	8,51%	6,01%
Transports	4,41%	12,98%	10,18%
Hotels and restaurants	1,98%	10,00%	4,20%
Information and communication activities	2,57%	21,84%	22,92%
Finance and Insurance	1,64%	16,40%	16,02%
Real estate activities	0,92%	19,46%	18,41%
Scientific activities	4,38%	19,73%	20,52%
Personal services activities	0,36%	13,70%	11,31%
Firm services activities	3,12%	17,41%	17,05%

Figure 1.2: Distribution of sample firms across industries



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Chapter 2

Cash holdings, investment decisions, and growth in small businesses.

Observations show that small and medium enterprises (SMEs) hold quite large cash reserves. This chapter develops a theoretical framework to explain the specific financial conditions of SME growth. It explains the role of the constitution of cash reserves in SME development. In our theoretical framework, financial constraints arise from SME informational opacity, which limits the liquidity of firm investment opportunities for external investors. The illiquidity of SME growth opportunities is determined by the dependence between firm assets and the composition of external investor asset portfolio. Our model shows that, in the presence of this market imperfection, the constitution of cash reserves is a necessary condition for small businesses to raise external equity and finance further development. Overall, this model presents an explanation of the significant levels of cash holdings observed in small businesses. Moreover, our model sheds light on how small businesses can use strategically cash holdings to take advantage of illiquid growth opportunities.

Keywords: Small business; Growth; Investment; Asset specificity; Liquidity management.

2.1 Introduction

Small businesses hold relatively large cash reserves. For instance, a recent study by the Banque de France (2009) underlines a negative association between firm size and cash holdings. The ratio of cash holdings to equity was above 50% for French small and medium enterprises (SMEs) for the period 2006–2008, whereas it was less than 40% for average sized firms and only 25% for larger firms over this period. Several empirical studies underline a negative influence of firm size on corporate cash holdings in Spain (Garcia-Teruel and Martinez, 2008), in the US (Faulkender, 2004), and in France (Ginglinger and Saddour, 2007). Moreover, in a majority of small businesses, economic growth does not follow the growth of equity (see Chapter 1), which is consistent with the fact that small businesses utilize part of their internal resources to increase cash reserves rather than finance investment. This chapter develops a model to understand why SMEs hold such non-trivial amounts of cash reserves.

Although, SMEs mostly rely on short-term financing and entrepreneur wealth in initial stages of growth, access to long-term external financing is an essential step in the small business financial growth cycle (Berger and Udell, 1998). SME development into large firms is not linear; it presupposes passage through growth thresholds. One important growth threshold is the acquisition of a competitive advantage. A majority of SMEs acquire a competitive advantage by investing in specific (intangible and information intensive) assets, such as innovation activities and human capital. Tangible assets can easily be financed by debt, because they serve as collateral, but to finance intangible assets, small businesses need to rely on equity financing. Moreover, information intensiveness complicates the evaluation of small businesses growth opportunities. This is aggravated by the fact that there is not an organized market for SMEs, and therefore no public prices. Given SMEs' growth

opportunities informational opacity, it is difficult to trade these exposures, because investors must incur an information acquisition cost beforehand. Although, the empirical literature suggests the existence of a risk factor linked to the specificities of small business risk, models linking investment and financial constraints do not account for this dimension. In the model, external investors cannot hedge on the markets their exposure to SME specific risk, because of small businesses informational opacity. Therefore, private equity investors must internalize the management of this illiquid risk, which increases the cost of external equity for small businesses (Froot and Stein, 1998). Given SME growth assets specificity, cash management policy can be value enhancing for small businesses. This chapter develops a model that explains the role of cash holdings in supporting SME growth.

According to the static tradeoff approach, firms should invest until the marginal cost of financing equals the marginal gain from investing. One limit to the static tradeoff approach is that it assimilates financial constraints to the degree of market frictions. However, financial constraints also arise from the degree of liquidity constraints. Indeed, cash flows decrease firm dependence on costly external funds, which reduces firm financial constraints. Taking into account the degree of liquidity constraints introduces an interaction between internal financing capacity and the cost of external financing. Multistage financing and investment decision models account for the endogeneity of financial constraints. These models underscore how liquid balance sheets can mitigate the underinvestment problem. According to multistage financing and investment decision models, cash management policies might be value enhancing (Tirole, 2006). Departing from this intuition, we develop a framework to explore the specific conditions of SME growth. We present a multistage equity financing and investment decision model, where financial frictions relate to the informational opacity of small business growth opportunities.

This chapter develops a framework in which the entrepreneur faces a trade-off between investing and constituting cash reserves. Holding cash is costly, as initially the entrepreneur must reject positive net present value projects. However, such policy may be value enhancing if the firm has good but illiquid growth opportunities. Given that there is no hedging instrument to manage SME idiosyncratic risk, holding SME shares is costly for external investors, which ask a premium to invest in illiquid SMEs. The only way for investors to manage their risk is through portfolio diversification. Therefore, the cost of external finance depends on the covariance between the SME project exposure to the specific risk and investor portfolio exposure to this risk. Thus, small businesses need to manage their project non-tradable risk component to reduce the financing cost of profitable but illiquid growth opportunities. The entrepreneur can cover a fraction of this non-tradable risk, by maintaining cash reserves. In this context, cash holdings can be viewed as a reserve of cash capital. Cash capital reduces the cost of external financing for firms with illiquid growth opportunities. By holding cash reserves, small businesses with illiquid growth opportunities preserve their potential for growth.

The remainder of this chapter proceeds as follows. Section 2.2 reviews the literature related to our model and the model SME specific assumptions. Section 2.3 presents the theoretical framework and model results. Section 2.4 discusses the implications of the model and sets forth our conclusions.

2.2 SME financing and cash holding: related literature and model assumptions

Multistage financing and investment decision models portray how liquid balance sheets mitigate underinvestment (2.2.1). However, they do not capture the specific financial conditions of SME growth. In order to develop a model specific to SME growth, we rely on two assumptions, which take into account the specificities of SME financing (2.2.2).

2.2.1 Related literature: The role of liquid balance sheets in mitigating underinvestment

Our model is similar to multistage financing and investment models that explain how liquid balance sheets mitigate underinvestment. Our model shares the intuition that accounting for the fact that financial constraints have two dimensions, the degree of market friction and the degree of liquidity constraint, implies that cash management policies might be value enhancing. However, current models focus on large business and do not account for the specificities of SMEs.

One group of authors focuses on the precautionary motive for holding cash. A liquid balance sheet allows firms to make value-increasing investments when the opportunity arises (Keynes, 1936). Following this intuition, Almeida et al. (2004) propose a model of "cash flow sensitivity of cash," which refers to a firm's propensity to save cash out of cash inflows. Their model implies that firm cash flow sensitivity of cash depends on the extent to which the firm faces financing constraints. The tradeoff between the value of foregone marginal projects and the expected value of additional projects that the firm will be able to fund in the future determines constrained firms' optimal level of cash holdings. Cash management is irrelevant for unconstrained firms, because they are always able to access external financing to undertake valuable investment opportunities. Cash management policy is, however, valuable

for constrained firms, because it limits liquidity constraints, which ultimately prevents forgoing valuable projects. Almeida et al. (2004) use a sample of publicly traded US manufacturing firms from 1981 to 2000 to test their model prediction. They observe that the cash flow sensitivity of cash is not statistically different form zero for unconstrained firms, but is positive and significantly different from zero for constrained firms.[26] In the same vein, Boyle and Guthrie (2003) dynamic model shows that introducing the possibility of delaying investment can reverse the relationship between the availability of internal funds and investment.[27] The effect of additional internal funds on the value of the option to wait is larger for constrained firms, because it prevents forgoing future profitable projects. This makes current investment by relatively unconstrained firms more sensitive to additional internal funds than is investment of constrained firms. Alternatively, Almeida and Campello (2007) show that investment and financing become endogenous when firms are able to pledge their assets as collateral. Their model predicts a non-monotonic relationship between investment–cash flow sensitivity and financial constraints. This non-monotonic relationship results from the effect of asset tangibility on the firm financial constraint status. Acquiring more tangible assets sustains more external financing. Therefore, at relatively low levels of asset tangibility, investment–cash flow sensitivity increases with asset tangibility. Indeed, highly tangible firms become unconstrained, because current investment reduces their future financial constraints. However, this effect ceases to exist at high levels of asset tangibility, as highly tangible firms become unconstrained. These authors find empirical support for their model prediction in a sample of US manufacturing firms over the period 1985–2000. They observe that asset tangibility positively and significantly affects the investment–cash flow sensitivity of

[26] To test their model they separate firms according to *a priori* measures of the financing frictions they face. They use five alternative schemes to partition their sample (payout ratio, firm asset size, absence of bond ratings, absence of commercial paper rating, and index of firm financial constraints based on results in Kaplan and Zingales (1997)).

[27] According to the literature on investment-cash flow sensitivity (*e.g.*, Fazzari *et al.*, 1988), constrained firms should have a higher investment-cash flow sensitivity than unconstrained firms, because their financing capacity is more dependent on firm cash flows.

financially constrained firms, but that tangibility drives no shifts in these sensitivities when firms are unconstrained.

Finally, Acharya et al. (2007) model whether debt reduction and cash retention are substitutes. Their model shows that for financially unconstrained firms, it is indifferent whether they use their excess cash flows to increase internal savings or to reduce debt. However, for constrained firms, cash management policies can be value enhancing. Both higher cash stocks and lower debt levels increase a constrained firm's future funding capacity and its ability to undertake new investment opportunities. The value of debt reduction depends on the correlation between current and future project quality. A higher correlation implies that firms with good initial investment projects face a reduced cost of debt in future states, because of external investors' higher expectation for good outcomes. However, the value of cash holdings is insensitive to this correlation. Therefore, when this correlation increases, the preference shifts from carrying cash toward reducing debt. These authors find support for their model prediction in a sample of US manufacturing firms over a three-decade period (1971–2000). Overall, these models point out that holding cash reduces firm financial constraint by relaxing its liquidity constraint, which prevents forgoing valuable future investment projects.

Beginning with Froot et al. (1993), another set of models accounts for the fact that managing firm cash flow volatility reduces the cost of external financing, which is beneficial for firm investment. Froot et al. (1993) model a firm facing a two-period investment and financing decision. They show that the effect of cash flow volatility on investment depends on the degree of market friction. For unconstrained firms, a reduction in cash flow at the intermediate stage results in higher external fundraising, which has no impact on firm investment. However, when the marginal cost of external financing is increasing with the

amount raised, a cash shortfall can disrupt the optimal investment plan and adversely affect firm value. The Froot et al. (1993) model implies that if a constrained firm does not hedge against the variability of its cash flow, then this variability can cause variability in investment spending. Therefore, hedging can help a firm to stabilize its internal cash flow and to mitigate the underinvestment problem. However, when it is difficult to write formal hedging contracts, because the underlying shock cannot be well described ex ante, or objectively measured ex post, alternative mechanisms might be more efficient. Cash holding is one of these alternative mechanisms. Lyandres (2007) models how firm cash holdings affect investment–cash flow sensitivity. This author demonstrates that firms with higher cash flow will have lower investment–cash flow sensitivity, because holding cash relaxes financial constraints. However, for firms with low cash flow, there is no sense in holding cash, as this will be insufficient to reduce the cost of external financing. Overall, this leads to a non-monotonic, U-shaped relation between financial constraints and investment–cash flow sensitivity. Cleary et al. (2007) distinguish between two effects. On the one hand, there is the cost effect: when a firm increases its investment, it must raise more external financing, which increases its required repayment and therefore the risk of liquidation. On the other hand, there is the revenue effect: when a firm increases its investment, the resulting increases in expected revenue improve the firm's ability to repay its debt and reduce the marginal cost of financing. These authors show that when internal funds are positive, the cost effect dominates the revenue effect, and firms have an incentive to hold cash in order to reduce the cost of external financing. However, when cash flows are negative, the revenue effect dominates the cost effect, and firms have no incentive to hold cash. Overall, their model predicts a U-shaped relationship between financial constraints and investment–cash flow sensitivity.

Consistent with these models, the empirical literature, which focuses only on large firms, supports the fact that cash holdings are used to limit firm cash flow volatility and ultimately to mitigate constrained firms' underinvestment. Opler et al. (1999) show that firms, which have easier access to capital markets, tend to hold lower levels of cash, using a sample of publicly traded US firms over the 1971–1994 period. Han and Qiu (2007), using quarterly information from a sample of US publicly traded companies over the period 1997–2002, find that the impact of cash flow volatility on firm cash holdings depends on firm financial status. Financially constrained firms increase cash holdings in response to an increase in cash flow volatility, whereas the cash holdings of unconstrained firms are not sensitive to cash flow volatility. Kim et al. (1998), using a sample of US companies, reports that firms facing a higher cost of external financing and having more volatile earnings hold significantly larger amounts of cash. Bates et al. (2006) present similar findings for the US. Overall, the empirical literature on the determinants of cash holdings supports the notion that constrained firms' cash holdings are sensitive to cash flow volatility, whereas unconstrained firms' cash holdings are insensitive to cash flow variability.

Multistage financing and investment decision models underline the importance of asset liquidity management for firms facing difficulties in accessing external financing. On the one hand, a liquid balance sheet alleviates firms' liquidity constraints, which increases their investment capacity. On the other hand, when the marginal cost of external financing is increasing with the amount raised, cash holdings both reduce the cost and the amount of external financing, because this reduces cash flow volatility. The model developed in this chapter builds on these models from the literature, but it also accounts for the specific financial condition of SME growth.

2.2.2 A model specific to SMEs

To account for the specific financial conditions of SME growth, our model makes two specific assumptions. First, the model focuses on equity finance, because this plays a key role in the development of small businesses (2.2.2.1). Furthermore, it explicitly models financial constraints related to the specificity of SMEs. Financial constraints arise from SME informal opacity, which limits the liquidity of firm investment opportunities (2.2.2.2).

2.2.2.1 External financing is limited to external equity

The model assumes that the only external investors are equity investors. Berger and Udell (1998) propose that small businesses go through a financing growth cycle. At the initial stage of their development, SMEs resort to entrepreneur wealth and short-term financing. Short-term financing is generally obtained through trade credit and short-term loans guaranteed on working capital assets. However, to develop further, small businesses need to access long-term external financing. Indeed, funding by the entrepreneur is limited and costly. Entrepreneur funding limits investment to the entrepreneur's resources and is costly for the entrepreneur given that it increases wealth under-diversification.[28] Long-term debt may finance firm investment only if this investment can be used as collateral. However, investments supporting small business development do not represent good collateral. Indeed, small businesses rely heavily on the acquisition of strategic resources to survive and grow. A strategic resource is characterized by its complexity, its exclusivity (Wernerfelt, 1984), its inability to be rapidly accumulated (Dierickx and Cool, 1989), and its valuable, rare and inimitable nature (Barney, 1991). The retention by the firm of strategic resources allows it to develop a comparative advantage, essential to sustain its development (Penrose, 1959). Product and process innovation, as well as accumulation of human capital, are the principal

[28] See Chapter 1, Section 1.2.1 for a detailed discussion on this issue.

strategic resources of small businesses. Innovation activities allow the firm to preempt the acquisition of geographical (location) and technological (patent) resources, as well as client perception (Lieberman and Montgomery, 1998). Innovation activities allow the firm to develop its market share, to realize economies of scale and scope and to secure the loyalty of clients, which all favor firm growth. Human capital depends on the education and professional experience background of the entrepreneur and its employees. Firm human resources policy strongly influences SME human capital. Therefore, key investments supporting SME growth have little collateral value given their lack of tangibility. Accordingly, the extensive use of debt is not appropriate to finance these investment projects (Berger and Udell, 1998; Carpenter and Petersen, 2002). Moreover, debt financing is limited because its time horizon is shorter than that of equity financing (Fluck, 1998). Indeed, a fundamental characteristic of the equity contract is that it has indefinite maturity as opposed to the finite maturity of debt contracts. Given SME intangible assets and their long investment time horizon, the transfer of control rights compensates, to some extent, the investor. Therefore, resorting to equity is more appropriate to finance SME growth; this is why our model focuses on the factors influencing SME access to external equity.

Given that an organized market for SME equity does not exist, private equity investors are limited to a restricted pool. On the one hand, the main providers of external finance are connected minority shareholders (family members for example), with whom relationships are based on trust (Vos et al., 2007). On the other hand, private equity financing relies on sophisticated investors: venture capitalists, business angels, leveraged buyout specialists and other firms. These sophisticated investors can be classified into two categories. First, external equity infusion can be realized via firm acquisition, either through firm integration in a business group or by leveraged buyout by a specialized company. This type of financing implies transfer to external investors of firm majority control and generally occurs in more

mature firms (Kaplan and Strömberg, 2009). This mode of SME growth is quite developed in France. Cayssials et al. (2007) report that 48% of French SMEs belong to a business group.[29] Second, external equity infusion can be realized by specialized investors who often rely on concentrated ownership stakes and powerful incentives (small salary) for insiders. Business angel financing is an informal market for direct financing, in which individuals invest directly in small businesses through an equity contract, and differs from other financing sources because it is not intermediated (Berger and Udell, 2006). Venture capital is an independent, professionally managed, dedicated pool of capital that finances high-risk, potentially high-reward start-up companies, often in high-tech industries; it purchases equity stakes while the firm is still privately held (Gompers and Lerner, 2001). Differences among specialized investors relate to the extent of financing they provide. Business angels invest much smaller amounts, although they represent an annual infusion of financing much larger than that of venture capital. Moreover, venture capital is often limited to specific small businesses located in technologically sophisticated and knowledge-intensive areas, along with early-stage businesses (Chemmanur and Chen, 2006).

Our model explores the factors associated with small businesses access to external equity. The choice to focus on access to external equity rather than debt is justified by the fact that private equity financing is best suited to financing SME development projects, as they often rely on intangible and long-term-horizon assets[30].

[29] We study this peculiar growth strategy in Chapters 3 and 4.
[30] However, the model could be easily extended to account for the possibility of debt financing.

2.2.2.2 Financial constraints arise from the informational opacity of SME growth opportunities

The second key assumption of the model relates to the factors that generate financial frictions. The model explicitly accounts for the specificity of SMEs: their informational opacity. The model assumes that financial frictions arise from firm informational opacity, which reduces the tradability of firm stakes. The literature focusing on returns to private equity investment largely supports the fact that in order to invest in private firms, investors ask for a premium. Ljungqvist and Richardson (2003), study one of the largest investors in private equity in the US between 1981 and 2001. These authors estimate that the return on invested capital measured by the profitability index averages 25,07% and still averages 24% when discounting cash flows at the market-risk–adjusted cost of capital. Kaplan and Schoar (2005) observe that private equity returns exceed those of public equity investment. These results hold even after correcting for the over-estimation bias arising from selection bias (Cochrane, 2005).

The justification for this higher return is grounded on the fact that the CAPM (capital asset pricing model) does not adequately capture SME risk; there exists a second risk factor. Friend and Lang (1988) suggest that the apparent long-run negative effect of corporate size on equity returns is consistent with the fact that the size effect mainly reflects a risk effect. Indeed, for smaller firms, the usual beta and variance measures do not capture a significant proportion of the risk, underlying the existence of another risk factor. Kaplan and Strömberg (2009) ground this second risk factor in informational issues. These authors observe that in more risky companies, defined as companies whose operations are harder to observe, venture capitalists ask for a higher premium. Ortiz-Molina and Phillips (2010) observe, using data on US firms over the period 1984–2006, that firms in industries with more liquid assets and during periods

of high asset liquidity, have a lower cost of capital. For another set of authors, higher returns for private equity investment relate to exit risk, particularly to IPO (initial public offering) exit risk. Exit risk refers to the risk of not being able to effectively exit and thus being forced either to remain much longer in the venture or to sell shares at a large discount. Ljungqvist and Richardson (2003) argue that private returns exceed public equity returns because of the timing and illiquidity (in the sense of difficulty to divest) of the cash flows. These authors observe that, on average, private equity funds begin to have positive returns to their investments only after an eight-year period. The illiquid nature of private equity requires that investors have relatively long investment horizons for the portion of their portfolio allocated to private equity. Cumming et al. (2005) use data on venture capital investment in the US over the period 1985–2004. These authors document the existence of a positive relationship between the liquidity of exit markets and the likelihood of investing in new projects.

Small businesses suffer from informational opacity given that their growth opportunities are difficult to evaluate. Indeed, SME assets comprise either working capital or specific assets, such as innovation activities and human capital, which are information intensive. This is aggravated by the fact that there is not an organized market for SMEs, and therefore no public prices. Given SMEs' high information opacity, it is difficult to trade these exposures, because investors must incur an information acquisition cost beforehand. Although, the empirical literature suggests the existence of a risk factor linked to the specificities of small business risk, models linking investment and financial constraints do not account for this dimension. Our model assumes that investment risk has two components. On the one hand, there is a transferable component, which can be a hedge on the market, because it is possible to assess its covariance with the market. On the other hand, there is a non-tradable component, which is not transferable to the market; this component must be retained by the investor no matter what. Therefore, financial frictions arise from the fact that firm growth

opportunity risk has a non-tradable component, which may induce a substantial discount when selling firm shares to external investors.

Departing from the work of Froot and Stein (1998), the model accounts for the fact that the non-tradability of private equity investment influences external investors' valuation of firm shares. When firm project risk is non-tradable, investors value firm shares according to a two-risk factor model. The second risk factor depends on two dimensions. First, the cost of external financing depends on the importance of the SME project non-tradable risk component. This importance is influenced by SME assets specificity, which drives the degree of information opacity. Second, the cost of external financing also depends on external investor ability to bear the risk. Specifically, the cost of external financing depends on the correlation between project risk and investor prior portfolio exposure to the specific risk factor.

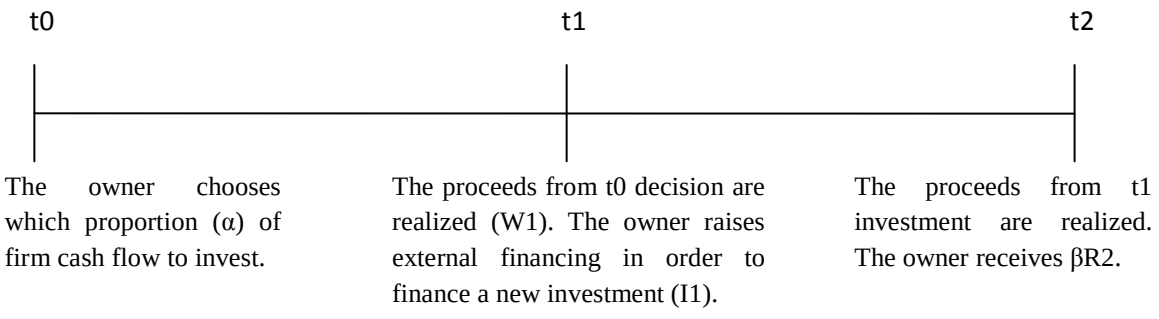
2.3 The model

The model is a representation of a dynamic problem, in which a firm has both present and future investment opportunities, and in which cash flows from assets in place might not be sufficient to fund all future positive net present value projects. The illiquidity of firm growth opportunities for external investors limits firm access to external financing. Depending on the firm's ability to obtain external financing, hoarding cash may facilitate future investments. In all, the framework considers how the liquidity of firm growth opportunities influences the optimal level of cash holdings to maximize firm growth. The model presents a framework to understand the interaction between growth opportunities, liquidity, cash holdings, and small businesses growth behavior.

2.3.1 Structure

We consider a two-period financing and investment decision model (see Figure 2.1). At time 0, the firm is an ongoing concern and the firm owner must decide how much cash flow to invest in a stochastic investment opportunity. At date 1, a new stochastic and fixed investment opportunity is available. The owner finances this new investment with the proceeds from the initial investment and from selling firm equity to an external investor. At time 2, the second investment project payoff is realized.

Figure 2.1: Timeline of the model



2.3.1.1 Date 0: Firm capital budgeting decision.

At time 0, the firm is an ongoing concern whose cash flow is CF_0. At this point, we assume that the firm's owner has vested all its wealth into the firm and that it retains all firm shares. The owner faces a divisible investment opportunity, I_0, which offers a random payoff Z_1 at time 1. This payoff is normally distributed and can be written: $Z_1 = \mu_1 + \varepsilon_1$, where μ_1 is the expected realization of the investment and ε_1 is a mean zero disturbance term, accounting for investment risk. We assume that the investment opportunity I_0 is equal to the firm's cash flow, and has an expected positive net present value ($\mu_1 > I_0 = CF_0$). At this point, the owner chooses simultaneously the optimal levels of investment and cash holdings: α_0 is the proportion of the investment (I_0) undertaken at the initial period, and $(1-\alpha_0)CF_0$ represents the firm's cash holdings. This initial decision results, in period 1, in the following proceeds:[31]

$$W_1 = \alpha_0(\mu_1 + \varepsilon_1) + (1-\alpha_0)CF_0 \quad (2.1)$$

2.3.1.2 Date 1: The entrepreneur raises external financing

At time 1, the entrepreneur faces a fixed investment opportunity of amount I_1 that generates, at period 2, a stochastic payoff: $Z_2 = \mu_2 + \varepsilon_2$, where μ_2 is the expected realization of the investment and ε_2 is a mean zero disturbance term. In order to finance this investment,[32] the owner uses the proceeds from the initial investment (W_1) and raises external financing by selling firm shares to an external investor for an amount: $X_1 = I_I - W_1$.

[31] We assume that marginal returns are constant.

[32] We assume that it is always preferable for the owner to undertake the new project, because the new project has a positive net present value. Alternatively, this could be explained by a reinvestment need related to the existence of sunk costs or a liquidity shock (a shortfall in earnings at time 1) that needs to be withstood in order for the

However, SME growth opportunities depend on specific assets (see 2.2.2.2), which drives SME shares illiquidity for external investors. Indeed, holding SME shares for external investors corresponds to the holding of illiquid assets, because such investors cannot hedge their exposures to firm risk on the market, and must therefore internalize the management of this illiquid risk. It is assumed that SME investment risk (ε_2) has two components: $\varepsilon_2 = \varepsilon_2^T + \varepsilon_2^N$. On the one hand, there is a transferable risk component (ε_2^T), which can be hedged on the market because it is possible to assess its covariance with the market. On the other hand, there is a non-tradable component (ε_2^N), which external investors must retain no matter what. The amount of non-tradable risk depends of the specificity of SME growth assets.

In order to transfer the firm non-tradable risk component to external investors, the owner must offer them a premium. In the model, this premium translates into a discount when selling firm shares to external investors. The value of firm shares sold to external investors is lower than their face value. We assume that external investors are risk neutral and maximize the expected value of their global portfolio. According to Froot and Stein (1998), the existence of a non-tradable risk component creates interdependency between the hurdle rate required by the investor and the nature of any previous assets on its balance sheet. Indeed, when there is a non-tradable component of risk, the hurdle rate required by external investors contains a second risk factor. Equation 2.2 expresses the hurdle rate required by external investors.

$$\kappa_N = r_F + \frac{Cov(M, \varepsilon_P^T)}{Var(M)}(r_M - r_F) + Cov(\varepsilon_2^N, \varepsilon_P^N)F(Z) \quad (2.2)$$

firm to continue and possibly succeed. The key feature is that a new external cash infusion is needed in order to cover operating expenses.

The first risk factor corresponds to the standard CAPM project valuation. r_F is the riskless rate, $\frac{Cov(M,\varepsilon_P^T)}{Var(M)}$ is the new project sensitivity to the market factor, and r_M is the expected return on the market portfolio. The second risk factor accounts for the effect of the non-tradable component of investment risk. $Cov(\varepsilon_2^N,\varepsilon_P^N)$ is the covariance between the project non-tradable risk component (ε_2^N) and the non-tradable risk component of the investor pre-existing portfolio (ε_P^N). Thus, investing in an SME is costly for external investors because they need to internalize the risk management of the correlation risk of the non-tradable risk component. The extent of this covariance determines the degree of liquidity of the firm shares for external investors. $F(Z)$ is investor effective risk aversion, which is an endogenous variable, as shown below. As the model focuses only on the effect of this second risk factor, we assume that the standard CAPM hurdle rate is equal to zero. Equation 2.3 gives the hurdle rate required by external investors.

$$\kappa_N = Cov(\varepsilon_2^N,\varepsilon_P^N)F(Z) \quad (2.3)$$

Investor effective risk aversion ($F(Z)$) depends of the contribution of the SME investment to the variance of the overall investor portfolio (Froot and Stein, 1998). $F(Z)$ is therefore an increasing function of the amount invested in the SME. Investor effective risk aversion can be decomposed as follows: $F(Z) = X_1 * Z$, where X_1 is the amount of capital infusion by external investors, and Z is the component of investor risk aversion that does not depend on the amount invested. Equation 2.4 gives external investor required return.

$$\kappa_N = Z * Cov(\varepsilon_2^N,\varepsilon_P^N) * X_1 \quad (2.4)$$

In order for the external investor to provide the required amount of external financing (X_1), the owner must commit to providing a proportion β_1 of firm shares to the external investor. β_1 is determined such that the expectation of investor return equates to the investor's investment cost: $\beta_1 \times \mu_2 = (1+\kappa_N) * X_1$. Equation 2.5 gives the proportion of shares (β_1) the owner must give up to raise an amount of external finance X_1.

$$\beta_1 = \frac{X_1(1 + X_1 * Z * Cov(\varepsilon_2^N, \varepsilon_P^N))}{\mu_2} = \frac{(I_1 - W_1)(1 + (I_1 - W_1)Z * Cov(\varepsilon_2^N, \varepsilon_P^N))}{\mu_2} \quad (2.5)$$

Equation 2.5 captures the cost of external financing for the SME owner. An increase of β_1 indicates that the owner must give more firm shares to obtain the same amount of external financing, which diminishes its final payoff. External investor portfolio structure $Cov(\varepsilon_2^N, \varepsilon_P^N)$, which determines the non-tradable risk of correlation that the external investor must manage, increases the cost of external financing.

Equation 2.5 also underscores that the firm internal financing capacity at date 1 (W_1) influences the cost of external financing. Initial investment and cash holding decisions, which determine the level of internal financing (W_1), will therefore influence the cost of external financing. At date 0, the entrepreneur trades off between the cost and benefit of cash holdings. Cash holdings are costly because they diminish the expectation of W_1. Indeed, cash holdings have a lower return than the investment, which increases the expected amount of external financing that must be raised. However, cash holdings reduce the volatility of W_1, which reduces the expected cost of external financing at date 1. Finally, based on equation 2.5, we can distinguish SME investment project quality. Whenever $\mu_2 < (I_1 - W_1)(1 + (I_1 - W_1)Z * Cov(\varepsilon_2^N, \varepsilon_P^N))$ firms cannot access external financing. Indeed, to finance the new investment project firms should sell more than 100% of firm shares to

external investors. This chapter only considers firms that have good-quality growth opportunities.

Overall, the model explores the dependence structure between the specificity of firm assets and external investor asset portfolios. Model solutions explore the role of the retention of capital in advance, through accumulation of cash, to support SME growth.

2.3.2 Analysis

At time 2, the payoff from period 1 investment is realized, and the SME owner net return is:

$$R_2 = (1-\beta_1)(\mu_2 + \varepsilon_2) \quad (2.6)$$

Equation 2.6 states that the realization of W_1, which drives the cost of raising external financing, via the amount of shares retained $(1-\beta_1)$, influences entrepreneur portfolio value at time 2. We adopt the notation $R_2 = F(W_1)$ in what follows, because R_2 is function of W_1. The owner's objective is to maximize its payoff at time 2, subject to the realization of the intermediate-stage proceeds and under the participation constraint of external investors. From the initial-period perspective, time 2 payoff is a random variable. We assume that the owner is risk neutral; the owner's valuation function is the expectation of its time 2 payoff (R_2):

$$V_2 = E(R_2) = E(F(W_1)) \quad (2.7)$$

The decision facing the owner at time 0 is which proportion (α_0) of the firm's initial cash flow (CF_0) to invest and the proportion $(1-\alpha_0)$ to retain as cash reserves, subject to the realization of the initial investment decision (W_1) and to satisfaction of the external investor constraint. This problem can be written:

$$\max_{\alpha_0} V_2 = E(F(W_1))$$
$$s.t$$
$$W_1 = \alpha_0(\mu_1 + \varepsilon_1) + (1-\alpha_0)CF_0$$
$$\beta = \frac{(I_1 - W_1)(1 + (I_1 - W_1)Z * Cov(\varepsilon_2^N, \varepsilon_P^N))}{\mu_2}$$

The solution of this problem gives the initial-period optimal investment:[33]

$$\alpha_0 * = -\frac{E\left(\frac{\partial F(W_1)}{\partial W_1}\right)}{E\left(\frac{\partial F(W_1)}{\partial^2 W_1}\right)} \frac{\mu_1 - CF_0}{Var[\varepsilon_1]} = \frac{\mu_1 - CF_0}{GVar[\varepsilon_1]} \quad (2.8)$$

$\alpha_0 *$ is the firm's propensity to use firm cash flow to invest; whereas $1-\alpha_0 *$ is the firm's propensity to save cash out of cash inflows, which Almeida et al. (2004) call the "cash flow sensitivity of cash". The optimal level of investment at the initial period (α_0) depends positively on the expected net return of the project ($\mu_1 - CF_0$), negatively on project risk ($Var[\varepsilon_1]$) and on entrepreneur endogenous risk aversion (G). This endogenous risk aversion arises from the fact that it is costly to raise external financing in the latter period. Indeed, the convexity of the external financing cost function, combined with the linearity of the return function results in a concave payoff. The concavity of the payoff function ensures that the endogenous risk aversion coefficient (G) is non-negative. This result relates to the findings of Froot et al. (1993). These authors state that firms ought to obtain some insurance against liquidity shocks so long as capital market imperfections prevent them from pledging the entire value of their activity to new investors. Such an outcome is quite standard in the corporate finance literature: future financial frictions create an endogenous risk aversion, which generates a rationale for internal risk management.

[33] We present the resolution of the maximization problem in Appendix 2.A.

In order to study in more detail which factors influence firm cash flow sensitivity of cash, it is necessary to pin down the previous coefficients. Indeed, entrepreneur endogenous risk aversion (G) depends of the realization of W_1, which depends on the initial investment decision α_0*. Replacing G and W_1 by their expressions in equation 2.8 results in the following expression of initial date optimal investment level:

$$\alpha^* = \frac{(\mu_1 - CF_0)(1 + 2Cov(\varepsilon_2^N, \varepsilon_P^N)Z(I_1 - CF_0)}{2Cov(\varepsilon_2^N, \varepsilon_P^N)Z((CF_0 - \mu_1)^2 + Var(\varepsilon_1))} \quad (2.9)$$

Proposition 1: The dependency between firm growth opportunities illiquidity and the characteristics of external investors influences firm optimal level of cash holdings.[34]

a) In the limiting case where the covariance between investor prior portfolio and the firm project non-tradable risk is null (SME growth opportunities are liquid), firms do not hold cash at the initial date: $\underset{Cov(\varepsilon_2^N, \varepsilon_P^N)\to 0}{Limit}\alpha_0^* = 1$

b) The covariance between investor prior portfolio and firm project non-tradable risk has a monotonic and positive influence on firm optimal level of cash holdings: $\frac{\partial \alpha^*}{\partial Cov(\varepsilon_2^N, \varepsilon_P^N)} < 0$

c) Investor component of risk aversion, which is not influenced by the amount of external finance, has a positive influence on firm optimal level of cash holdings:[35] $\frac{\partial \alpha^*}{\partial Z} < 0$

[34] Proof is set forth in Appendix 2.B.

[35] We assume that the covariance between investor prior portfolio and the firm project non-tradable risk is always positive. Indeed, in the case where this covariance is negative, external investors will be willing to pay more to invest in such exposures, as this allows them to diversify their portfolio of non-tradable exposures.

Proposition 1.a states that firm cash flow sensitivity of cash depends on the extent to which firm growth opportunities are illiquid. Firms that have liquid growth opportunities (when $Cov(\varepsilon_2^N, \varepsilon_P^N)$ tends to zero) do not have a systematic propensity to save cash. However, firms that have illiquid growth opportunities are constrained and have positive cash flow sensitivity to cash. Proposition 1.b further states that the dependency between firm asset specificity and investor asset portfolio composition, which determines the illiquidity of SME growth opportunities, increases the optimal level of cash holdings. When this dependency increases, external investor exposure to the non-tradable correlation risk increases. Higher external investor covariance increases their risk-adjusted cost of capital, because they must internalize the management of this non-tradable risk. Ultimately, this increases the cost of external financing for the SME. Finally, the parameter Z, which captures the component of risk aversion that does not depend on the level of investment, also influences the firm's optimal level of cash holdings (proposition 1.c). Froot and Stein (1998) show that investor endogenous risk aversion can be mitigated if such investors have sufficient capital to internally hedge against the non-tradable risk. Moreover, investor endogenous risk aversion also depends on their ability to access financing.

Overall, proposition 1 states that the propensity of a firm to hold cash increases with the illiquidity of firm growth opportunities and the endogenous risk aversion of external investors. In order to take advantage of their growth opportunities, SMEs need to co-invest with external investors. This need for co-investment results from the fact that the cost of external financing is increasing with the amount of funds raised. One way to ensure that small businesses take advantage of investment opportunities when they present themselves is for such businesses to hold cash reserves. SMEs use cash reserves as capital reserves to finance future investment. This buffer in capital reduces the cost of external financing, which increases firm ability to finance future projects.

Firm characteristics also influence firm propensity to hold cash reserves. First, initial project risk ($Var[\varepsilon_1]$) increases the optimal level of cash holdings, for firms with illiquid growth opportunities. Indeed, when initial project risk increases, entrepreneurs need to hold more cash reserves in order to limit the volatility of firm time 1 proceeds (W1). Second, cash holdings are value enhancing because they reduce the volatility of intermediate-date proceeds, but they also limit initial investment payoff expectation. Therefore, the optimal level of cash holding is influenced by the tradeoff between the quality of future growth opportunities $(\mu_2 - I_1)$ and current investment return $(\mu_1 - CF_0)$. Our results show that optimal cash holdings is increasing in the quality of future growth opportunities and decreasing in the level of current growth opportunities.[36]

2.4 Discussion and conclusion

Our model develops a framework specific to SMEs. Given SMEs informational opacity there are not hedging instruments for SMEs risk exposures. Investors are unable to transfer their risk exposure when holding SMEs shares. Therefore, investors value firm's shares according to a two risk factor model, which increases the firm cost of capital (Froot and Stein, 1998). The cost of SMEs external finance increases with the covariance between SME project exposure to SME specific risk and investor portfolio exposure to this risk. Model results indicate that there is a trade-off between investing and constituting cash reserves. The model demonstrates that holding capital (held in cash) in advance allows small business to amplify external financing capacity, when their growth opportunities are illiquid. The model shows that firm financial structure (co-investment by the firm) limits SME financial constraints and

[36] See Appendix 2.C for the proof.

under-investment. Overall, the model shows that holding cash is a financial policy response to the incompleteness of hedging markets resulting from small businesses informational opacity. The model leads to several empirical predictions concerning the specific financial conditions of SME growth.

First, the model develops the future investment motive for holding cash. Firms that have good but illiquid growth opportunities will tend to first accumulated cash before growing. The model distinguishes between two types of SME. Liquid firms with liquid future growth opportunities, which do not need to constitute cash reserves to grow. Patient firms that need to accumulate cash reserves to fund their illiquid growth opportunities. Empirically, firms with liquid growth opportunities, when market fluctuations explain well their return process, should not have a tendency to hold cash. Nevertheless, firms with illiquid growth opportunities should have a propensity to limit their investment to constitute reserve of cash. This is consistent with Minton and Schrand (1999), who underline that the negative influence of firm cash flow volatility on firm investment is exacerbated when volatility results from factors that are relatively uncorrelated with typical systematic factors (interest rates, foreign exchange prices, or commodities prices). The model's predictions are also consistent with Oskan and Oskan (2004), who observe that liquidity reduces firm precautionary motives to hold cash, in a sample of publicly traded UK firms over the period 1984–1999.

The characteristics of external investors also influence the liquidity of firm shares. Larger and more diversified investors should be able to offer better conditions for small business to raise external equity, because firm non-tradable risk covariance with investor portfolio diminishes when investor portfolio size increases. On the one hand, this indicates that relying on connected financing is not efficient given that individual investors are less able to diversify their portfolios than are private equity specialists. This prediction is consistent with results

obtained in Chapter 1, which show that small businesses where family ownership concentration is high favor the growth of their internal equity over the short-term growth of firm activity. On the other hand, this indicates that to facilitate the financing of small businesses, private equity investors should be large enough and not overly specialized, in order to reduce this covariance. Overall, the model provides an explanation for the higher average level of cash holdings in small businesses, particularly in family SMEs.

Second, the ability of external investors to finance small businesses depends on their endogenous risk aversion (Z). According to the Froot and Stein (1998) model, this endogenous risk aversion depends on the access of external investors to financing. That is, if external investors have easy, costless access to external financing, this endogenous risk aversion will tend toward zero. Therefore, conditions on the refinancing market indirectly influence small business growth behavior. The model predicts that in periods of difficult access to refinancing, for example, following the recent subprime crisis, we should observe an accentuation of small business patient growth behavior. Moreover, Froot and Stein (1998) show that investor capital budgeting policy influences endogenous risk aversion. Therefore, regulations imposing capital requirements for private equity investors, such as Basel II for banks, could lower SME patient growth behavior, by transferring risk management, through holding cash capital, from SMEs to external investors.

Finally, we derive from the model empirical predictions on the link between cash holdings, ownership structure, and firm asset specificity. According to the model, firm cash reserves should influence mature SME ownership structure. For a given level of firm asset specificity, we should observe that past levels of cash holdings reduce ownership dispersion. Moreover, for a given level of cash holdings, the model predicts that an increase in the illiquidity of small business growth opportunities should increase the dispersion of firm

ownership structure. Finally, firms in which ownership concentration is high should have a higher propensity to adopt patient growth behavior. This last prediction is consistent with results obtained in Chapter 1.

Overall, this chapter develops a model accounting for the influence of informational opacity on SME financial behavior. We explain why cash management is important for SME growth. In particular, we focus on the role of the retention of cash capital to facilitate small businesses access to external equity. This chapter contributes to the developing literature on the specificities of small business finance (Huyghebaert et al., 2001; Huyghebaert and Van de Gucht, 2007; Brav, 2009). Consistent with this literature, this chapter accounts for the fact that information problems are exacerbated in small businesses. This chapter complements this literature by focusing on small business equity financing rather than on demand for debt financing.

Appendices

Appendix 2.A: Solving the owner optimization problem

The optimal allocation is given by the solution to the following equation: $\frac{\partial V_2}{\partial \alpha_O} = 0$.

Therefore, $\frac{\partial V_2}{\partial \alpha_O} = 0 \Leftrightarrow \frac{\partial E[F(W_1)]}{\partial \alpha_O} = 0$.

Applying the chain rule we obtain,

$$\frac{\partial V_2}{\partial \alpha_0} = 0 \Leftrightarrow E\left(\frac{\partial F(W_1)}{\partial W_1}\frac{\partial W_1}{\partial \alpha_0}\right) = 0$$

Using the definition of covariance, the above expression can be rewritten

$$\frac{\partial V_2}{\partial \alpha_0} = 0 \Leftrightarrow Cov\left(\frac{\partial F(W_1)}{\partial W_1}\frac{\partial W_1}{\partial \alpha_0}\right) + E\left(\frac{\partial F(W_1)}{\partial W_1}\right)E\left(\frac{\partial W_1}{\partial \alpha_0}\right) = 0$$

Given that the random variables in the model are assumed to be normally distributed, it is possible to apply the following property of the covariance:

$Cov(f(x), y) = E(f'(x))Cov(x, y)$ then:

$$\frac{\partial V_2}{\partial \theta_1} = 0 \Leftrightarrow E\left(\frac{\partial F(W_1)}{\partial W_1}\right)E\left(\frac{\partial W_1}{\partial \alpha_O}\right) + E\left(\frac{\partial F(W_1)}{\partial^2 W_1}\right)Cov\left(W_1, \frac{\partial W_1}{\partial \alpha_O}\right) = 0 \quad (2.A.1)$$

Given W_1 it is possible to compute:

$$E\left(\frac{\partial W_1}{\partial \alpha_0}\right) = \mu_1 - CF_0$$
$$Cov\left(W_1, \frac{\partial W_1}{\partial \alpha_0}\right) = \alpha_0 Var[\varepsilon_1]$$

Replacing these values in equation 2.A.1 obtains:

$$\frac{\partial V_2}{\partial \alpha_O} = 0 \Leftrightarrow E\left(\frac{\partial F(W_1)}{\partial W_1}\right)[\mu_1 - CF_0]] + E\left(\frac{\partial F(W_1)}{\partial^2 W_1}\right)[\alpha_0 Var[\varepsilon_1]] = 0 \text{ (2.A.2)}$$

Therefore, at the first period the optimal investment is given by:

$$\alpha_0 * = -\frac{E\left(\frac{\partial F(W_1)}{\partial W_1}\right)}{E\left(\frac{\partial F(W_1)}{\partial^2 W_1}\right)} \frac{\mu_1 - CF_0}{Var[\varepsilon_1]} = \frac{\mu_1 - CF_0}{GVar[\varepsilon_1]} \text{ (2.A.3)}$$

With $G = -\frac{E\left(\frac{\partial F(W_1)}{\partial W_1}\right)}{E\left(\frac{\partial F(W_1)}{\partial^2 W_1}\right)}$ is a coefficient of endogenous risk aversion.

Appendix 2.B: Proof of Proposition 1

$$G = \frac{2Cov(\varepsilon_2^N, \varepsilon_P^N)Z}{1 + 2Cov(\varepsilon_2^N, \varepsilon_P^N)Z(I_1 - W_1)}$$

$\underset{Cov(\varepsilon_2^N, \varepsilon_P^N)\to 0}{Limit} G = 0$, therefore, $\underset{Cov(\varepsilon_2^N, \varepsilon_P^N)\to 0}{Limit} \alpha^* = 1$

$$\frac{\partial \alpha_0^*}{\partial Cov(\varepsilon_2^N, \varepsilon_P^N)} = \frac{CF_0 - \mu_1}{2Cov(\varepsilon_2^N, \varepsilon_P^N)^2 Z((CF_0 - \mu_1)^2 + Var[\varepsilon_1])} < 0 \text{ because } \mu_1 > CF_0 .$$

$$\frac{\partial \alpha_0^*}{\partial Z} = \frac{CF_0 - \mu_1}{2Cov(\varepsilon_2^N, \varepsilon_P^N)Z^2((CF_0 - \mu_1)^2 + Var[\varepsilon_1])} < 0 \quad \text{when} \quad Cov(\varepsilon_2^N, \varepsilon_P^N) > 0 \quad \text{and} \quad \frac{\partial \alpha_0^*}{\partial Z} < 0$$

when $Cov(\varepsilon_2^N, \varepsilon_P^N) < 0$.

Appendix 2.C: Firm characteristics influence on firm propensity to hold cash reserves

$\frac{\partial \alpha_0^*}{\partial Var[\varepsilon_1]} = \frac{(CF_0 - \mu_1)(1 + Cov(\varepsilon_2^N, \varepsilon_P^N)Z(I_1 - CF_0)}{2Cov(\varepsilon_2^N, \varepsilon_P^N)Z((CF_0 - \mu_1)^2 + Var[\varepsilon_1])^2} < 0$ when $Cov(\varepsilon_2^N, \varepsilon_P^N) > 0$ and

$\frac{\partial \alpha_0^*}{\partial Var[\varepsilon_1]} > 0$ when $Cov(\varepsilon_2^N, \varepsilon_P^N) < 0$.

Influence of the quality of firm initial project on its investment and cash holdings decision:

$$\frac{\partial \alpha_0^*}{\partial (CF_0 - \mu_1)} = \frac{(1 + 2Cov(\varepsilon_2^N, \varepsilon_P^N)Z(I_1 - CF_0)}{2Cov(\varepsilon_2^N, \varepsilon_P^N)Z((CF_0 - \mu_1)^2 + Var[\varepsilon_1])} > 0$$

To examine the influence of the quality of firm growth opportunities on its investment and cash holding, we evaluate the influence of I_1 on α_0^*. As I_1 increases, this means that the quality of growth opportunities decreases.

$$\frac{\partial \alpha_0^*}{\partial I_1} = \frac{(\mu_1 - CF_0)}{(CF_0 - \mu_1)^2 + Var[\varepsilon_1])} > 0$$

Therefore, the quality of growth opportunities increases firm propensity to hold cash.

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Chapter 3

Are small business groups an organizational strategy that promotes growth? Evidence from French SMEs.

This chapter investigates whether small business groups (SBGs) represent an organizational strategy that promotes growth. We explore empirically this issue using a unique data set on French small businesses ownership. We investigate whether SBGs represent an efficient response to market imperfections faced by small businesses. We explore two alternative hypotheses. First, SBGs may promote growth because SBG internal capital markets increase capital allocation efficiency. Second, SBGs may use their internal capital market for mutual insurance, which improves their access to external financing, and ultimately favor their dynamism. Our results show that grouping small businesses promotes small businesses development, because SBGs improve capital allocation. Finally, accounting for SBG diversification strategies does not affect the results.

Keywords: Internal capital market; Efficiency; Mutual insurance; Small business; Growth.

3.1 Introduction

Under perfect market conditions, individual actors satisfy their needs through exchange. If so, why do firms exist at all (Coase, 1937)? Proposing the parallel that the firm is to individual agent as business group (BG) is to firm, Granovetter (1995) moves this issue a step further and asks why BGs exist. The extensive literature on the benefits and costs of BGs focuses on BG ability to reallocate capital within group firms, through their internal capital market (ICM). The empirical literature shows that large firm BG affiliation is beneficial in emerging economies where market imperfections are severe, but is inefficient in developed economies (see Table 3.1). Overall, empirical results support the hypothesis that BGs are rational institutional arrangements in which internal markets replace imperfect external markets to allocate resources (Leff 1976, 1978; Kock and Guillén, 2001).

This paper explores this hypothesis in the specific context of small business groups (SBGs). An SBG bonds together small businesses that are controlled by one of the constituent small businesses, and SBG economic weight is equivalent to that of a small and medium enterprise (SME). Recent evidence suggests that small business groupings are an emerging phenomenon. In France, the number of SMEs affiliated with an SBG has doubled over the last decade and SBG affiliation includes one-third of French SMEs (Cayssials et al., 2007). Small businesses suffer from important imperfections with respect to the market, especially from information imperfections. Informational opacity limits SME access to external finance (Berger et al., 2001; Beck et al., 2006). In Chapters 1 and 2 we observe that the specific financing condition of SMEs growth led them to adopt peculiar financial strategies to maintain the compatibility between independence and growth. Alternatively, SMEs can adopt a specific organizational strategy to favor their development. Affiliation with a BG can be beneficial for SME development because ICMs allow for a more efficient allocation of

capital. Indeed, BG controlling firms have two advantages, relative to other intermediaries, in allocating capital to affiliated firms. They possess an informational advantage and are able to effect changes in strategy with lower transaction costs. Further, by combining cash flows, BGs can reduce the volatility of firm revenues (mutual insurance). This reduced risk favors investment and reduces the variability of financial indicators, which improves BG external financing capacity relative to standalone firms.

This chapter explores whether formation of an SBG is an organizational strategy that promotes growth. To identify SBGs, we use a unique dataset that exhaustively lists ownership links between French corporations. Classically, we observe the influence of SBG affiliation on firm growth using a firm-level sample. This sample contains complete accounting information for 24 522 SMEs, which are either independent or affiliated with an SBG, over the period 1999-2007. In an original manner, we also compare the growth of SBGs to that of standalone firms. Indeed, affiliation with an SBG can favor affiliated-firm growth without leading to overall growth in the SBG. The group-level sample contains 2 799 SBGs for which we are able to compute group aggregate data and 2 799 matched standalone firms. Further, we explore through which channels SBGs promote growth. First, we test whether SBG ICMs are efficient, by observing the effect of SBG affiliation on firm performance. Second, we test whether SBGs operate mutual insurance between group firms. We explore the influence of SBG affiliation and group status on firm operating risk and capital structure. Finally, we establish a typology of SBGs according to their diversification strategies and test whether SBG characteristics affect the results.

Our results show that grouping small businesses is an organizational strategy that favors SME growth: SBGs promote affiliated-firm dynamism and SBGs invest more than their standalone counterparts. The results further show affiliation to a SBG is beneficial for firm profitability and that there is no over-investment in SBGs. Overall, the results support that SBGs ICM are more efficient in allocating capital than external markets. Finally, accounting for SBG diversification strategies does not affect the results. Nevertheless, we observe that geographically diversified SBGs underperform relative to other SBGs, whereas we find no evidence of a diversification discount in SBGs.

The remainder of this paper proceeds as follows. Section 3.2 summarizes the literature and develops the hypothesis. Section 3.3 presents the data and the methodology. In Section 3.4 we discuss the results. Finally, Section 3.5 presents our conclusions.

3.2 Literature review and hypothesis development

The literature in finance and economics on the costs and benefits of BGs focuses on four aspects. A first line of research regards BGs as a setting for the study of conflicts of interest between controlling and minority shareholders (see Chapter 4 for a detailed discussion of this issue). A second line of research regards BGs as socially counterproductive organizations. In this view, BGs serve as a mechanism through which a subset of firms obtains favorable treatment from authorities. Such a condition limits competition, which undermines the economy's allocation efficiency (Khanna, 2000). The empirical evidence on this topic is scarce and contradictory (Fisman, 2001; Manos et al., 2007). A third line of research suggests that a BG is a mechanism to increase market power. By horizontally integrating, BGs achieve the benefits of multi-market contact (Bernheim and Whinston, 1990). By vertically integrating, upstream and downstream producers avoid double marginalization and increase their joint profits (Spengler, 1950). However, empirical evidence does not support that BGs increase market power. Weinstein and Yafeh (1995) report that Keireitsu members appear to compete quite fiercely. Encoua and Jacquemin (1982) show that cartelization does not result from the formation of BGs in France.

The main stream of research focuses on the costs and benefits of internal markets. In presence of market imperfections, BGs have three main roles: BGs can be a solution to replace imperfect product and labor markets. Second, BGs can foster development by replacing defaulting public infrastructures (Fisman and Khanna, 2004). Finally, BGs pool and reallocate capital within group firms; the discussion focuses on this latter role. In a BG, the controlling firm redistributes financial resources away from some affiliates and redirects them

to others through internal transfers.[37] Thus, BG controlling firm allocation decisions endogenously determine affiliated-firm wealth. Group firm performance is sensitive to BG resources (Chang and Hong, 2002; Bertrand et al., 2002). First, we review the literature on the efficiency of ICM capital budgeting policy (3.2.1). Second, we review the literature on the use of ICM for mutual risk insurance between group firms (3.2.2). Finally, we review the literature on the influence of BG characteristics on the efficiency of capital allocation (3.2.3).

3.2.1 Capital allocation efficiency in BGs

Markets imperfections can impair the efficiency of financial markets; in this context, ICMs may improve the allocation of financial resources. According to Alchian (1969) and Williamson (1975), BG controlling firms[38] improve capital allocation efficiency, compared to other types of intermediaries, because of their higher information production. BG controlling firms have access to private information on group firms, which increases their ability to assess the quality of projects, reducing adverse selection issues. Moreover, controlling firms differ from banks because they hold the residual control rights on group-firm assets. Control rights both reduce monitoring costs and give to controlling firms the authority to redeploy the assets of projects that are performing poorly under existing management (Gertner et al. 1994). Given their specificities, controlling firms are more prone to operate on the basis of "winner picking" (Stein, 1997). Winner picking implies that resources are allocated to the best-performing group firms, which improves capital allocation. However, inefficient cross-subsidization can undermine the efficiency of capital allocation in BGs. Inefficient cross-subsidization occurs when there is over-investment in poorly performing BG firms and under-

[37]Internal transfers occur through various operations: transfer prices, trade-credit, distribution policy, intra-group loans, cession, and acquisition of assets.

[38] We use the term controlling firm because we focus on BGs, however, the literature on conglomerates uses the term headquarters. Indeed, the literature on ICM allocative efficiency was first developed to understand the performance effect of conglomerates and applies to both types of organizations.

investment in highly performing ones. According to Meyer et al. (1992), failing businesses create more value loss as part of a BG than as standalone firms. Whereas a failing business cannot have a value below zero if operated on its own, it can have a negative value if it is part of a BG that provides cross-subsidies. According to the literature on large BGs, inefficient cross-subsidies result from empire building (Jensen, 1986), evaluation problems (Stein, 1997), rent seeking behavior of top management (Scharfstein and Stein, 2000), and expropriation of minority shareholders (Johnson et al., 2000).

There are two approaches to evaluate empirically the efficiency of capital allocation in conglomerates or BGs. A majority of empirical work, follows the approach of Berger and Ofek (1995), who compare the performance of an affiliated firm with a standalone counterpart. Other studies observe whether affiliated-firm investment sensitivity to BG cash flow depends on firm investment project quality, following the approach of Shin and Stulz (1998). Table 3.1 summarizes the mixed empirical evidence on ICM efficiency. ICMs tend to increase affiliated-firm performance in emergent countries, whereas in developed countries BG affiliation has systematically a negative influence on affiliated-firms performance. The papers using the Shin and Stulz (1998) approach generally observe that affiliated-firm performance does not explain firm investment sensitivity to BG cash flows. This observation contradicts the hypothesis of ICM capital-allocation efficiency.

Table 3.1: Synthesis of the empirical literature on the efficiency of ICMs

Papers	Sample	Level of comparision	Method	Measure of performance	Efficiency of ICM
Berger and Ofek (1995)	US 1986-1991	Conglomerate	Comparison	Market Value	-
Buysschaet et al. (2008)	Belgium 1997-2004	Affiliated firms	Comparison	ROA	-
Chacar and Vissa (2005)	US - India 1989-1999	Affiliated firms	Comparison	ROA persistence	-
Choi and Cowing (1999)	Korea 1985-1993	Affiliated firms	Comparison	ROE	-
Khanna and Palepu (2000)	India 1993	Affiliated firms	Comparison	ROA,TOBIN Q	-
Maksimovic and Phillips (2002)	US 1975-1992	Conglomerate	Comparison	Productivity	-
Ferris et al. (2003)	Korea 1990-1995	Affiliated firms	Comparison	Excess value, ROA	-
George and Kabir (2008)	India 1998-2000	Affiliated firms	Comparison	ROA, Tobin Q	-
Khanna and Yafeh (2005)	12 emerging countries and Japan	Affiliated firms	Comparison	ROA	Depends of the country
Khanna and Rivkin (2001)	14 emerging countries	Affiliated firms	Comparison	ROA, ROE	+ in certain countries
Claessens et al. (2006)	9 East Asian countries 1994-1996	Affiliated firms	Comparison	Market value	=
Lensink and van der Molen (2010)	India 1996-2001	Affiliated firms	Comparison	Market value, ROA	=
Chang and Choi (1988)	Korea 1975-1984	Affiliated firms	Comparison	ROA, ROE	+
Cheong et al. (2010)	Korea 1990-1996	Affiliated firms	Comparison	Factor intensity, profitability, growth	+
Estrin et al. (2009)	Russia 1993- 2002	Affiliated firms	Comparison	ROA	+
Kremp and Philippon (2008)	France 1997-2006	Affiliated firms	Comparison	Growth	+, effect is stronger for affiliation to a large BG
Hoshi et al. (1990)	Japan 1978-1985	Affiliated firms	Comparison	Cumalative investment	+
Gautier and Hamadi (2005)	Belgium 1991-1996	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	ROA	=
Hoshi et al. (1991)	Japan 1965-1986	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-
Lee and Lee (2002)	Korea 1997-2001	Affiliated firms	Effect of firm performance on equity investment from other BG firms	Assets, Earnings	+
Ozbas and Scharfstein (2008)	US 1979-2006	Conglomerate	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-
Perrotti and Gelfer (2001)	Russia 1993- 2002	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	+
Shin and Stulz (1998)	US 1980-1992	Conglomerate	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-
van der Molen (2005)	India 1997-2002	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-
Gopalan et al. (2007)	India 1989-2001	Affiliated firms	Effect of firm performance on the decision to allocate group loans	ROA	-

Overall, the empirical evidence is consistent with the view that ICMs are a second-best option in the presence of market imperfections (Leff, 1978). Given that small businesses suffer from informational opacity, which limits their access to external financing (Berger et al., 2001), we expect group affiliation to be beneficial for small businesses. SBG ICMs might be more efficient in allocating capital to SMEs than external investors, because of their greater access to information and ability to redeploy assets.

3.2.2 Mutual insurance among BG firms

BGs can also promote growth if they provide mutual insurance between group firms. Mutual insurance reduces BG cash flow volatility and default risk, which ultimately increases BG-firm financing capacity.

Via the ICM, controlling firms have the ability to affect the allocation of risk. BG firms can combine their cash flows to reduce the volatility of group-firm revenue. BGs can also use cross-subsidies to redistribute cash flow to weak affiliates, which provides them with implicit insurance against bankruptcy (Riyanto and Toolsema, 2008). Indeed, within the group, the short-run profits of some firms may be sacrificed in order to allow weaker, but potentially profitable firms, to survive through economic slowdowns and external shocks. Mutual insurance among BG firms has several benefits. It limits firm under-investment, because mutual insurance stabilizes financially constrained firms' cash flow (Froot et al., 1993). Mutual insurance among BG firms can be an alternative to imperfect stock markets to achieve risk sharing. Kali (2003) theoretically demonstrates that BGs favor the development of economies by allowing entrepreneurs to choose highly productive though risky technology, when stock markets are inefficient or non-existent. Cross-subsidies to support the weaker BG firms reduce the risk of liquidation by banks (Kim, 2004). Mutual insurance between group firms reduces idiosyncratic shocks on financial indicators, which increases BG firms' external financing capacity (Shamphantharak, 2007). Moreover, the intra-group debt guarantee increases group firm debt capacity (Chang and Hong, 2000). Affiliated firms can also benefit from the BG's reputation to improve bank perceptions (Shiantarelli and Sembenelli, 2000). Finally, the Ghatak and Kali (2001) model suggests that BGs alleviate asymmetric information issues. These authors show that correlation among the costs of borrowing across group members mitigates credit rationing.

Table 3.2: Empirical evidence on the mutual insurance effect of BGs

Paper	Country sample	Level of comparision	Method	Effect of BG affiliation on firm risk or access to external finance
Buysschaet et al. (2008)	Belgium 1997-2004	Affiliated firms	Effect of BG affiliation on the variance of performance measure	+
Khanna and Yafeh (2005)	12 emerging countries and Japan	Affiliated firms	Effect of BG affiliation on the variance of performance measure	- except in India
Estrin et al. (2009)	Russia 1993- 2002	Affiliated firms	Effect of BG affiliation on the variance of performance measure	-
Hoshi et al., (1991)	Japan 1965-1986	Affiliated firms	Effect of BG affiliation on the variance of performance measure	-
Dewaelheyns and Van Hulle (2006)	Begium 1996-2001	Affiliated firms	Effect of BG affiliation on firms default probability	-
Gopalan et al. (2007)	India 1989-2001	Affiliated firms	Effect of BG affiliation on firms default probability	-
Dow and McGuire (2009)	Japan 1987-2001	Affiliated firms	Propping to distress affilated firms	-
Ferris et al. (2003)	Korea 1990-1995	Affiliated firms	Propping to distress affilated firms	-
Kremp and Sevestre (2000)	France 1996	Affiliated firms	Effect of group affiliation on firm capital structure	+ for large BG, = for SBG
Lensink et al. (2003)	India 1989-1997	Affiliated firms	Effect of group affiliation on firm investment cash-flow sensitivity	+
Gorodnichenko et al. (2009)	Germany 1988-2000	Affiliated firms	Effect of group affiliation on firm investment cash-flow sensitivity	+
Dewaelheyns and Van Hulle (2009)	Belgium 1996-2005	Affiliated firms	Effect of group affiliation on firm access to external debt	+
Ferris et al. (2003)	Korea 1990-1995	Affiliated firms	Effect of group affiliation on firm access to external debt	=

Table 3.2 summarizes the results of empirical studies that test these issues. A first set of studies observes the influence of group affiliation on the variance of firm performance. Results generally support the notion that BG firms have a lower volatility of profitability than independent firms, with the exception of Buysschaert et al. (2008) in Belgium and Khanna and Yafeh (2005) in India. Other studies test the effect of BG affiliation on firm default risk; they observe whether BG affiliation influences firm default probability. These papers observe that group affiliation reduces firms' probability of default. Alternatively, some studies investigate the issue of propping in BGs. Propping is a transfer from higher-level to lower-

level firms in the control chain, which is intended to bail out the receiving firm from bankruptcy (Friedman et al., 2003). The studies show that controlling firms transfer resources to support distressed affiliated firms, which is consistent with the propping hypothesis. Finally, papers that investigate whether BG affiliation increases firm access to external financing compare investment-cash flow sensitivities or target leverage levels between affiliated and standalone firms. The results show that group affiliation increases firm use of debt financing, particularly for the smallest firms (Gorodnichenko et al., 2009). Consistently with the empirical evidence, we expect that if SBGs realize mutual insurance among group firms, they will be less risky and have higher leverage levels than standalone firms.

3.2.3 The effect of group characteristics on the efficiency of the ICM

Another related body of literature focuses on how BG characteristics influence affiliated-firm performance. This literature arises from observation of a diversification discount in diversified conglomerates in the US (Berger and Ofek, 1995). Another set of empirical papers explores the influence of the characteristics of the controlling firm (banks and holding companies) on the performance effect of BG affiliation.

The literature distinguishes four types of diversification. Vertical integration involves merging a potential supplier and a customer into common ownership, thus bypassing market transactions. An important gain from vertical integration is avoiding market transaction costs. In particular, vertical integration mitigates under-investment related to the hold-up problem (Williamson, 1985) or contractual incompleteness issues (Grossman and Hart, 1986) when assets are specific. Vertical integration may also prove efficient when the market fails to provide a full set of hedging instruments (Chao et al., 2005 a,b; Aïd et al., 2009). However, vertical integration might be value decreasing, as it requires more complex coordination in

technology, management, production and capital investment. Related diversification involves merging businesses with overlapping input or output markets. This allows businesses to employ common resources such as technology, plants, brand names, distribution systems, or reputation. If such resources exhibit scale or scope economies in ways that cannot be effectively exploited though market transactions or relational contracts, it may be efficient to pool different businesses into groups to capitalize on those economies (Teece, 1980, 1982). Unrelated diversification merges businesses that operate in different industries and with no a priori synergies. Unrelated diversification can be beneficial, because product diversification reduces BG risk. However, unrelated diversification can adversely affect the efficiency of capital allocation in BGs. Given that BGs controlling firms observe investment with noise, the efficiency of capital allocation across group firms depends on the correlation between investment opportunities. Therefore, unrelated diversification reduces ICM efficiency, whereas in related industries the observation noises are correlated, which facilitates winner picking (Stein, 1997). Finally, geographic diversification consists of creating subsidiaries in different geographic areas. The literature exploring geographic diversification is scarce and generally focuses on internationalization rather than on local geographic diversification. Geographic diversification may add value because it allows exploitation of market opportunities and reduces risk across markets. However, geographic diversification might also destroy value, because it posits complex coordination problems across multiple geographic markets, which reduces the ability to derive the benefits of economies of scale and scope (Hymer, 1970; Rugman; 1977; Denis et al., 2002).

Table 3.3: Empirical evidence on the effect of BG characteristics on performance

Papers	Country sample	Level	Type of diversification	Performance Variable	Effect
Perrotti and Gelfer (2001)	Russia 1993- 2002	Affiliated firms	Controlling firm is a bank	Tobin Q	+
Gautier and Hamadi (2005)	Belgian 1991-1996	Affiliated firms	Controlling firm is a holding	ROA	+
Lins and Servaes (2002)	7 emerging markets 1995	Affiliated firms	Geographical	Market value, ROA, ROE	=
Kakani (2000)	India 1987-2000	BG	Geographical (International)	Tobin Q, ROA, ROE	+
Yiu et al. (2005)	China 1999	BG	Geographical (International)	ROA	+
Chang and Hong (2000)	Korean 1985-1996	Affiliated firms	Related	ROA	+
Claessens et al. (2003)	9 East Asian economies 1991-1996	Conglomerate	Related	Excess profitability	+
Ferris et al. (2003)	Korea 1990-1995	Affiliated firms	Related	Excess value, ROA	=
Kakani (2000)	India 1987-1999	BG	Unrelated	Tobin Q, ROA, ROE	-
Lensink and van der Molen (2010)	India 1996-2001	Affiliated firms	Unrelated	Market value	-
Claessens et al. (2003)	9 East Asian economies 1991-1996	Conglomerate	Unrelated	Excess profitability	-
Rajan et al. (2000)	US 1979-1993	Conglomerate	Unrelated	Investment	-
Lins and Servaes (2002)	7 emerging markets 1995	Affiliated firms	Unrelated	Market value, ROA, ROE	-
Singh et al. (2007)	India 1998-2000	Affiliated firms	Unrelated	Market value, ROA, ROE,	-
van der Molen (2005)	India 1997-2002	Affiliated firms	Unrelated	Relative value added	-
Chang and Choi (1988)	Korea 1975-1984	Affiliated firms	Unrelated	ROA, ROE	+
Buysschaet et al. (2008)	Belgium 1997-2004	Affiliated firms	Unrelated	ROA, ROE	=
Khanna and Palepu (2000)	India 1993	Affiliated firms	Unrelated	ROA, Tobin Q	non linear effect
Claessens et al. (2003)	9 East Asian economies 1991-1996	Conglomerate	Vertical integration	Excess profitability	=

The empirical evidence on the influence of diversification strategies on affiliated-firm performance generally indicates that unrelated diversification has a negative effect on affiliated-firm performance and on ICM efficiency (see Table 3.3). The only exception is Khanna and Palepu (2000), who observe a non-linear effect of product diversification on affiliated-firm performance in emerging countries. These authors show that low levels of diversification have a negative effect, whereas high levels of diversification have a positive effect on affiliated-firm performance. Empirical studies further suggest that related or geographic diversification is favorable for affiliated-firm performance. Claessens et al. (2003) find no effect of vertical integration on conglomerate-division performance in East Asia. Finally, Gautier and Hamadi (2005) and Perotti and Gelfer (2001) show that the performance effect of BG affiliation depends on the characteristics of the BG controlling firm. Their results

point out that the presence of a financial controlling firm enhances the performance of affiliated firms. They attribute this result to the fact that a financial controlling firm facilitates BG access to the external financing available to the group. Therefore, we expect SBG characteristics to mitigate the efficiency and mutual insurance effects of BGs. In particular, unrelated diversification should negatively affect SBG performance.

3.3 Data and methodology

The sample used in this study comes from two databases; we merge the information thanks to each firm's unique fiscal identifier (SIREN). We identify SBGs using a large database provided by Coface Services, which listed 1 900 000 direct and indirect ownership links between French corporations in 2005. Accounting information comes from the Diane database, supplied by Coface Services and Bureau van Dijk. This database provides detailed accounting information for French firms from 1998 to 2007. First, we define SBGs and develop the identification procedure (3.3.1). Second, we present the characteristics of SBGs and establish a typology of SBGs (3.3.2). Third, we develop the methodology used to test the hypothesis (3.3.3). Finally, we present the sample and descriptive statistics (3.3.4).

3.3.1 SBG definition and identification

An SBG is a BG whose economic weight is equivalent to that of an SME. The initial database on ownership links between firms does not identify groups, but only direct and indirect ownership links between firms. First, we identify BGs according to the criterion of majority control. Then, we identify SBGs according to the SME definition of the European Commission.

A BG is an ownership structure in which the controlling firm controls several firms through a control chain (Bianchi et al. 1997). A control chain is a chain of control relationships between firms.[39] A firm directly controls another firm whenever that firm has a particular minimum level of ownership in another firm. A firm indirectly controls another firm whenever that firm owns a particular minimum ownership-stake threshold in a third firm that owns an ownership-stake threshold in the controlled firm. Although the literature agrees on the fact that the ownership threshold must maximize the probability of identifying a unique controlling shareholder, it disagrees upon the threshold of ownership to adopt. Studies on large BGs often adopt a threshold of 20% of direct ownership at each level of the control chain to establish control (La Porta et al., 1999; Faccio et al., 2001; Claessens et al., 2002). However, in weakly dispersed ownership structures, several large shareholders might arise who are able to form coalitions and contest the control of the dominant shareholder (Bennedsen and Wolfenzon, 2000). As a result, the use of a 20% threshold is criticized for European firms and for private firms where ownership concentration is high (Reneboog, 2000 and Biebuyck *et al*., 2005). Moreover, a control threshold of 50% avoids counterintuitive results such as the existence of two controlling shareholders. Accordingly, we adopt the criterion of majority control[40] to identify BGs (Chapelle and Szafarz, 2005).[41] A BG corresponds to a chain of majority-control relationships: the ultimate shareholder effectively controls a firm (with direct cash flow rights larger than 50%) that in turn effectively controls another firm, and so on. Finally, we distinguish between three types of firm. **Controlling firms** are the BG's ultimate shareholder. **Controlled firms** are affiliated to a BG but are not the ultimate shareholder. In **independent firms**, no outside firm holds more than 50% ownership.

[39] In Appendix 3.A, we give an example of a control chain; Appendix 3.B presents the initial database.
[40] For a detailed review of the different methodologies existing to identify BGs see Levy (2009).
[41] We detail the identification procedure in appendix 3.C.

This study focuses on SBGs whose economic weight is equivalent to that of an SME. In order to implement this size criterion, we use the European Commission[42] SME definition. The EU definition classically includes size thresholds to define the size perimeters of SMEs. This size threshold is expressed in terms of turnover (< 50 M€), total assets (< 43 M€), and workforce (< 250 full-time employees). The EU definition also integrates the notion of economic dependence via the notion of autonomy. When a firm holds capital participations in other firms higher than 50% or when another firm holds a participation higher than 50% in that firm, then the firm is a linked enterprise. Linked firms need to aggregate their accounting data to determine if they correspond to an SME. We use the same methodology to determine BG size. The use of workforce information is difficult because is it not well described in the database and is biased by the use of external workforces. Therefore, to compute group size we aggregate BG firm turnover for 2005. We exclude identified BGs for which turnover information is lacking for one or more group firms and for which aggregate turnover is higher than 50M€. Overall, the final sample includes 15 877 SBGs.

3.3.2 SBG characteristics

SBGs, that we identified in the database, have on average a turnover of 9,8M€, but half of SBGs have a turnover less than 6M€ (see Table 3.4). Average values for the number of firms and levels indicate that the SBG control structure is generally quite simple; consisting of a controlling firm that controls directly two firms.

Given that BG characteristics influence the performance effect of BGs (see 3.2.3) we develop a typology of SBGs. First, we identify whether a holding company is the SBG controlling firm. The variable **holding** takes the value 1 when a holding firm controls the SBG, zero otherwise. Second, we develop several indicators of SBG diversification, departing

[42] Recommendation 2003/361/CE of the EU Commission of the 6 May 2003, applied since 1 January 2005.

from group-firm geographic and industry location. We first compute the number of "departments" [43] (NDEP) and industries (NIND) in each SBG.[44] The variable **related** takes the value 1 when there is no diversification in the SBG (both NDEP and NIND are equal to 1). Then, we classify diversified firms based on the type of diversification they embody. The variable **geo** is equal to 1 when SBG diversification is only a geographic diversification (NIND=1 and NDEP>1), and zero otherwise. Finally, within SBGs that are industrially diversified (NIND>1), we distinguish between vertical integration and unrelated diversification. To build our indicator of vertical integration, we use the matrix of trade credit default provided by Bardos and Stili (2006). This matrix presents the trade-credit default rate between furnishers and clients across industries. We distinguish between forward vertical integration, in which the controlling firm is a furnisher and controlled firms are clients, and backward integration, in which the controlling firm is a client and the controlled firms are the furnishers.[45] The variable **vertical**[46] takes the value 1 whenever we identify backward or forward integration, and zero otherwise. Finally, **unrelated** takes the value 1 whenever the SBG is industrially diversified with no vertical relationship between group firms (NIND>1 and vertical=0).

Table 3.4 reports the characteristics of the 15 877 SBGs identified in the database. Panel A of Table 3.4 shows that, on average, SBG firms are located in 2,4 industries and 1,8 "departments", and that 10,42% of SBGs are controlled by a holding company. Some 32% of SBGs are not diversified, whereas 68% are geographically or industrially diversified. Diversified SBGs are larger, have more complex control structures (a higher number of

[43] Departments are French administrative districts, in Metropolitan France there is 95 departments. .
[44] When there is a holding in the BG, the variable NIND is equal to NIND-1.
[45] In Appendix 3.D we explain how we construct this indicator.
[46] Our indicator of vertical integration presents several limits. First, it relies on the assumption that the level of default between industries is a good indicator of industries vertical proximity. Second, the information provided by Bardos and Stili (2006) considers trade credit default only between 17 industries. This high level of aggregation is in sharp contrast with the indicator of industrial diversification, which considers a 99 classes classification.

levels), and are more often controlled by a holding firm. Panel B of Table 3.4 shows that the majority of diversified SBGs adopt a strategy of industrial diversification (94%), whereas only 6% of diversified SBGs adopt a strategy of pure geographic diversification. The type of diversification influences SBG size and complexity: SBGs with only geographic diversification are smaller and have fewer levels, but are more often controlled by a holding firm. Finally, the majority of industrially diversified SBGs adopt a strategy of unrelated diversification rather than vertical integration[47]: only 4% of sample SBGs adopt a strategy of vertical integration. Within vertically integrated SBGs, the most common strategy is forward integration (90%). Unrelated diversified groups differ from vertically integrated ones in that they are smaller and have simpler control structures.

Table 3.4: Summary statistics on SBG characteristics

Panel A : Full Sample			
	All Sample	Related	Diversified
N	15877	5094	10783
% of Total Sample	100%	32,08%	67,92%
% of groups with a holding	10,42%	3,10%	13,87%
NBFirms	3,00	2,25	3,35
Level	2,14	2,03	2,19
Nindustry	2,28	1,00	2,89
Ndep	1,82	1,00	2,20
Turnover (in K€)	9880	8034	10915

Panel B: Diversifed SBG						
	Diversified		Industrial		Vertical	
	Geographic	Industrial	Unrelated	Vertical	Forward	Backward
N	643	10140	9489	651	589	62
% of total sample	4,05%	63,87%	59,77%	4,10%	3,71%	0,39%
% of subsample	5,96%	94%	94%	6%	90,37%	9,63%
% of groups with a holding	17,57%	13,64%	13,72%	12,44%	13,75%	0%
Nb Firms	2,30	3,41	3,30	5,10	5,13	4,81
Level	2,08	2,19	2,13	3,15	3,15	3,11
Nindustry	1,00	3,01	2,87	4,99	5,02	4,73
Ndep	2,10	2,21	2,16	2,97	2,99	2,73
Turnover (in K€)	9223	11022	10534	18139	18469	15002

[47] The low level of SBG characterized by vertical integration might results from the limits of our vertical integration indicator.

3.3.3 Methodology

Following common practice, we use regression analysis to test our hypotheses. We test the hypotheses on the firm-level sample (3.3.1.1), and on the group-level sample (3.3.1.2).

3.3.3.1 Firm-level tests

In order to test whether affiliation with an SBG enhances small-business growth, we estimate equation 3.1:

$$Growth_i = \beta_1 + \beta_2 Affiliated_i + \beta_3 Size_i + \beta_4 Age_i + Industry_i + \varepsilon_i \quad (3.1)$$

In equation 3.1, the dependent variable is the firm's average **investment rate.**[48] The equation controls for firm age, industry, location, and size.[49] Our analysis focuses on the sign of the coefficient on firm affiliation. **Affiliated** takes the value 1 when the firm is affiliated with an SBG, and zero when it is an independent firm.[50] If affiliation with an SBG enhances small-business growth, we expect β_2 to be positive.

In order to test whether SBGs are more efficient than external investors in allocating capital to SMEs, we estimate equation 3.2:

$$ROA_i = \beta_1 + \beta_2 Affiliated_i + \beta_3 Size_i + \beta_4 Age_i + \beta_5 Leverage_i + Industry_i + \varepsilon_i \quad (3.2)$$

In equation 3.2, the dependent variable is firm ROA[51], which proxies for firm operating profitability. Firm industry controls for firm performance opportunities—such as the

[48] All variables are defined in Appendix 3.E.
[49] Chapter 1 discusses the relevance of the inclusion of these variables. The only difference in this setting concerns the ***size*** variable. Instead of using the log of total assets, we use the log of total assets minus financial assets. We use this size variable because we compare standalone and BG firms according to their economic weight.
[50] We do not include controlling firms in the subsample because we focus on the effect of affiliation with an SBG on firm growth.
[51] Firm ROA is computed as the ratio of the firm EBITDA on its total assets.

importance of economies of scale in the industry where the firm operates—as well as characteristics of the market, including its size and the intensity of competition. Equation 3.2 also includes control variables for firm age and size. In addition, firm leverage controls for firm financial structure. The analysis focuses on the sign of the coefficient on the affiliated status of the firm. If capital allocation by SBGs is more efficient than capital allocation by external investors, then affiliation with an SBG should increase firm performance. Overall, a positive sign on β_2 indicates that SBGs promote affiliated small businesses profitability, which is consistent with the efficiency of capital allocation in SBGs.

To test whether SBGs operate mutual risk insurance among group firms, we estimate equation 3.3:

$$\sigma_{ROA_i} = \beta_1 + \beta_2 Affiliated_i + \beta_3 Size_i + \beta_4 Age_i + \beta_5 ROA_i + \beta_6 FinancialLeverage_i + Industry_i + \varepsilon_i \quad (3.3)$$

In equation 3.3, the dependent variable is the standard deviation of firm ROA (σ_{ROA_i}).[52] Drawing on the literature discussed in Section 3.2.2, we control for firm size, age, industry, ROA, and financial leverage. The analysis focuses on the sign of the coefficient on firm affiliation status. If SBGs use their ICMs for mutual insurance, affiliate firms should be less risky than standalone firms, because the ICM allow firms to smooth their revenue across group firms, therefore β_2 should be negative.

[52] Hoshi et al. (1991), Khanna and Yafeh (2005), Buyssachaert et al. (2008) and Estrin et al. (2009) adopt this method to test the mutual insurance hypothesis in BG. However the use of this variable is debatable given that the standard deviation is computed with a maximum of 10 observations per firm. Other variables such as the default probability or firm rating could be better proxy to capture firm risk, unfortunately such information is not available in the database.

3.3.3.2 Group-level tests

Further, we estimate equations 3.1 to 3.3 for a matched sample of standalone companies and SBGs.[53] With the exception of Kakani (2000), this approach is not developed in the literature on BGs. However, we think it could provide interesting insights into SBG performance effect. First, it is difficult to derive conclusions on the global effect of SBGs on performance from estimations of the effects of SBG affiliation. Indeed, such an approach implicitly assumes that affiliated firms have similar relative importance in SBGs. Therefore, this approach could be misleading if the effect of affiliation on performance is driven by the fact that a very small affiliated firm has a high level of performance. Moreover, this approach also accounts for the fact that a BG with synergies would have an asymmetric influence on returns of all affiliate members, if the synergies do not assist all businesses in the group equally (Brush and Bromiley, 1997). Thus, we estimate equations 3.1 to 3.3 but we replace the variable **Affiliated** by the variable **Group**, which takes the value 1 when the observation is an SBG and zero when it is a standalone firm. If grouping small businesses is an organizational strategy that enhances small businesses growth, we expect the sign of the group variable coefficient to be positive for equation 3.1. Moreover, interpretation of the sign of the coefficient of the group variable in equations 3.2 and 3.3 allows us to understand through which channel (ICM efficiency or mutual insurance) grouping SMEs affects growth.

Moreover, we estimate equation 3.4 to test whether there are differences in the capital structure of SBG and independent firms.

$$FinancialLeverage_i = \beta_1 + \beta_2 Group_i + \beta_3 Size_i + \beta_4 Age_i + \beta_5 Risk_i + \beta_6 Growth + \beta_7 Tangibility_i + Industry_i + \varepsilon_i \quad (3.4)$$

[53] See 3.4 for the detailed discussion on the constitution of this sample.

In equation 3.4, the dependent variable is SBG financial leverage[54]. Drawing on the literature discussed in Section 3.2.2, we control for firm size, age, industry, risk, sales growth, and asset tangibility. This analysis focuses on the sign of the coefficient on firm group status. If grouping SMEs increases the organization's debt capacity, we expect β_2 to be positive.

Finally, to test whether group characteristics influence the effects of affiliation with an SBG and of grouping small businesses on growth, profitability, and risk, we estimate equations 3.1 to 3.3 under the additional condition of dummy variables for group types. The study of the coefficients of the group characteristics variables allows us to drive conclusions on whether all types of SBGs are beneficial to firm or group performance. Comparison of the economic significance of coefficients helps us to drive conclusions on the effect of SBG characteristics on SBG and affiliated-firm performance.

3.3.4 Sample construction and descriptive statistics

In order to elaborate the study sample, we merge the ownership information with the Diane database. Following common practice, we exclude observations for which we do not have the required information and with incoherent balance sheet information (such as negative total assets). Moreover, we exclude observations for which we do not have at least two consecutive years of information with which to compute growth rates. Using these criteria, we end up with a firm-level sample of 13 651 firms affiliated with SBGs and 10 869 independent firms for which we have all relevant information over the period 1999-2007.

[54] To compute firm financial leverage, we compute firm or SBG financial debt without integrating intra-group loans or associates lending.

Table 3.5: Firm-level sample descriptive statistics

	Global Sample		
Firm/Group characteristics	Mean	STD	Median
Turnover in K€	5811	7662	3337
Total assets in K€	5319	17021	2209
Size in k€	4875	15338	1993
Age	15,46	12,65	11,35
Performance			
Sales growth	12,80%	35,84%	7,64%
Investment Rate	9,83%	17,32%	7,30%
ROA	13,07%	14,36%	10,87%
Risk	6,24%	5,89%	4,55%
Financial Leverage	101,45%	263,32%	38,23%

	Standalone		Affiliated		Mean comparision	
Firm/Group characteristics	Mean	STD	Mean	STD		
Turnover in K€	4604	6715	6761	8416	-2158	***
Total assets in K€	4525	18721	5952	15667	-1427	***
Size in k€	4242	18226	5379	13038	-1137	***
Age	16,89	12,43	14,32	10,76	4,2079	***
Performance						
Sales growth	9,99%	42,74%	15,04%	30,35%	-5,00%	***
Investment Rate	8,30%	18,58%	11,05%	16,31%	-3,20%	***
ROA	11,57%	15,65%	14,27%	13,34%	-2,70%	***
Risk	6,55%	6,88%	6,00%	5,10%	0,56%	***
Financial Leverage	105,46%	261,95%	98,25%	264,41%	7,22%	**

Table 3.5 reports descriptive statistics for the firm-level sample. Firm characteristics indicate that the sample comprises small, mature businesses with an average turnover of 6 M€, and a median turnover of 3,3M€. The various ratios of performance are consistent with those obtained by the Banque de France (2009) on the French SME population. Means comparisons show that small businesses affiliated with an SBG are, on average, larger and younger than standalone firms. Moreover, we observe that affiliated firms have, on average,

higher growth and operating profitability, but lower risk and financial leverage than standalone firms.

In order to compare SBGs with standalone firms, we aggregate SBG-affiliated firm accounting data. To truly reflect SBG economic characteristics, we maintain in the sample only those SBGs for which we have all the relevant information for all group firms.[55] Then, we compute the sum of group-firm accounting variables. We use this aggregated accounting information to compute SBG financial ratios. Finally, we compute average values over the study period. In order to evaluate the results relative to an appropriate benchmark, we use a matched-sample methodology to compare SBGs with standalone SMEs[56]. We realize the matching procedure on three variables: business size, age and industry location. To match independent firms and SBGs on size, we do not use turnover, because it overestimates the economic size of SBGs given the existence of internal trade. Neither do we use total assets, as this overestimates SBG size, because it includes the equity stakes in BG firms. Therefore, we match standalone firms and SBGs on their total assets minus financial assets. We match the ages of SBG controlling firms with those of independent firms, because the aim of this aggregated sample is to test whether forming an SBG is an efficient growth strategy compared to organic growth. SBG industry is that industry with the highest turnover concentration in any particular SBG.[57] We perform the one-to-one matching procedure as follows: for each SBG, we select one out of the standalone firms from the same industry, age class and size

[55] First, we eliminate all SBGs for which we do not have accounting information for all group firms in 2005. Second, we eliminate SBGs where accounting information is lacking for one year for a group firm (for example, a firm for which we have information in 2000 and 2001 and then from 2003 and 2005). Finally, for affiliated firms for which accounting information is lacking prior to 2005, we verify whether such information is consistent with the firm creation date—if not we eliminate the SBG. Overall, this strict selection procedure ensures that SBG aggregate data reflects SBG economic characteristics.

[56] We use a matching methodology for the group-level sample to control for the potential bias resulting from the fact that SBGs tend to be bigger than standalone firms in our sample.

[57] To obtain SBG industry, we compute the firm's weight in the SBG. This weight is the ratio of firm turnover to group turnover. Then, we add weights by industry, and attribute to the SBG that industry that has the highest weight.

class.[58] The final sample contains 5 598 observations, for which we have 2 799 standalone SMEs and 2 799 SBGs.

Table 3.6: Group-level sample descriptive statistics

	Global Sample		
	Mean	STD	Median
Firm/Group characteristics			
Turnover in K€	13342	8297	6923
Total assets in K€	12008	7467	6230
Size in k€	8184	5115	4268
Age	25,46	13,26	19,00
Performance			
Sales growth	14,70%	65,89%	7,48%
Investment Rate	12,46%	39,88%	7,49%
ROA	10,74%	15,88%	9,98%
Risk	6,08%	6,53%	4,51%
Financial Leverage	96,19%	249,19%	40,53%
Tangibility	19,24%	17,89%	13,36%

	Standalone		SBG		Mean comparision	
	Mean	STD	Mean	STD		
Firm/Group characteristics						
Turnover in K€	13117	8200	13567	8385	-450	
Total assets in K€	11806	7340	12209	8940	-403	
Size in k€	8005	6789	8364	7894	-359	
Age	26,02	12,26	24,89	14,26	1,14	
Performance						
Sales growth	9,85%	34,33%	19,55%	84,66%	-9,70%	***
Investment Rate	9,77%	21,97%	15,15%	50,77%	-8,20%	***
ROA	10,06%	19,50%	11,41%	11,66%	-1,30%	***
Risk	5,93%	6,14%	6,23%	6,83%	-0,30%	*
Financial Leverage	102,36%	273,43%	90,02%	225,06%	12,34%	*
Tangibility	21,25%	20,86%	17,23%	16,60%	4,02%	***

[58] Age and size class are based on the decile of SBG distribution for those variables.

Observations comprise medium-sized businesses, average turnover 13,1M€, and mature firms (see Table 3.6). Logically, there are no differences between the two subsamples according to size and age as we match samples on this criterion. Sales growth rate is 15%, investment rate is 12% and firm operating performance is 11%. Mean comparisons indicate that SBGs invest more, are more profitable and have similar levels of operating risk and external financial leverage as standalone firms.

3.4 Results

This section reports results on the effect of affiliation with an SBG on small-business growth, profitability, and risk (3.4.1). Then, we present results on whether the formation of an SBG is an organizational strategy that enhances growth (3.4.2). Finally, we present results on the effect of SBG characteristics on their performance and risk (3.4.3).

3.4.1 Does affiliation to a SBG favors small businesses growth?

Table 3.7 reports results on the influence of firm affiliation with an SBG on firm investment rate, ROA and risk. Column 1 shows that affiliation with an SBG has a positive influence on firm investment rate. The investment rate of firms affiliated with an SBG is, on average, 2,5% higher than that of standalone firms. The results in Column 1 support the fact that affiliation with an SBG promotes small business growth. Column 2 shows that affiliation with an SBG positively influences firm operating profitability. This result supports that SBG ICMs are efficient. Finally, Column 3 indicates that affiliation with an SBG slightly increases firm operating risk. There is apparently no evidence of mutual insurance within SBGs; cross-subsidies do not seem to be used to reduce affiliated-firm risk.

Table 3.7: SBG-affiliation influence on firm performance[59]

ordinary least square method, on the firm-level sample. *Investment rate* is the firm growth of capital invested. *ROA* is the firm ratio of EBITDA on total assets. *Operating risk* is the firm standard deviation of ROA. *Financial Leverage* is the firm ratio of financial debt on equity. *Affiliated* is equal to one when the firm is affiliated to a SBG, and to zero when it is a standalone firm. *Size* is the log of the firm total assets minus financial assets. *Age* is the number of years since firm creation. *Growth* is the firm turnover growth rate. All financial variables are average values over the study period. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that a coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level.

	Investment Rate		ROA		Operating Risk	
	(1)		(2)		(3)	
Affiliated	0,0250	***	0,0259	***	0,0015	*
	0,0024		*0,0019*		*0,0008*	
Size	0,0039	***	0,0024	***	-0,0103	***
	0,0009		*0,0008*		*0,0003*	
Age	-0,0002	***	-4,73E-05	**	-2,65E-06	
	2,54E-05		*2,04E-05*		*8,45E-06*	
ROA					-0,0153	***
					0,0027	
Leverage			-0,0056	***	-0,0003	*
			0,0003		*0,0001*	
Intercept	0,0583	***	0,0960	***	0,1417	***
	0,0083		*0,0073*		*0,0028*	
Industry dummies	Yes		Yes		Yes	
F	28,34	***	102,55	***	87,42	***
R2	0,0237		0,0843		0,0758	
Number of Observations	24522		24522		24522	

The literature reports a negative influence of BG affiliation on firm performance in developed countries (see Table 3.1). Consistently with Gorodnichenko et al. (2009), who find

[59] Intriguingly results show a negative relationship between firm risk and firm profitability. Although this is quite surprising it has been observed in previous studies of the same type (see for example Buyssachet et al., 2008). This result can be explained by the fact that we do not rely on market data but on accounting data in which firm profitability is the effective firm profitability, whereas shares market values also account for the expectations of the market. This paper does not focus on this issue, however future research on the reasons to this puzzle could be very interesting.

that affiliation with a BG is beneficial for the smallest businesses, we show that affiliation with an SBG is also a mechanism that enhances capital allocation in small businesses. Overall, the results suggest that SBG affiliation promotes small business growth. SBG controlling firms do better in allocating capital to small businesses than external financiers. These results are consistent with the argument that ICMs are a second-best solution in the presence of market imperfections, in the case of this study of information imperfections.

3.4.2 Is grouping small businesses an organizational strategy that enhances SME growth?

Table 3.8 reports estimations of equations 3.1 to 3.4 on the matched samples of SBG aggregate data and standalone firms. Column 1 indicates that SBGs are significantly more dynamic than standalone firms. The economic significance of the coefficient in front of the group variable is high. The investment rate of SBGs is, on average, 6,4% higher than that of standalone firms. The results, in Column 1, clearly support that grouping small businesses, in comparison with organic growth, is an organizational strategy that enhances small business dynamism. Column 2 shows that the benefits of grouping small businesses in terms of operating profitability is rather small. However, the positive, although small, effect of SBGs on operating profitability confirms that there is no over-investment in SBGs. Column 3 shows that, on average, SBGs and standalone firms have similar levels of operating risk. This result supports that SBGs do not operate mutual insurance between group firms, but do locate risk in affiliated firms. Indeed, the risk of SBGs is smaller than that of SBG-affiliated firms, which suggests specific risk allocation patterns in SBGs. Finally, Column 4 indicates that SBGs and standalone firms have similar capital structure.

Table 3.8: Group status influence on entity performance

Columns 1 to 4 report estimates of the coefficients when estimating equation 3.1 to 3.4, using the ordinary least square method, on the matched sample of SBGs and standalone firms. *Investment rate* is the entity growth of capital invested. *ROA* is the entity ratio of EBITDA on total assets. *Operating risk* is the entity standard deviation of ROA. *Financial Leverage* is the entity ratio of financial debt on equity. *Group* is equal to one when the observation is a SBG, and to zero when it is a standalone firm. *Size* is the log of the entity total assets minus financial assets. *Age* is the number of years since entity creation. *Tangibility* is the ratio of tangible fixed assets on entity total assets. All financial variables are average values over the study period. *Growth* is the entity turnover growth rate. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that a coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level.

	Investment Rate		ROA		Operating Risk		Leverage	
	(1)		(2)		(3)		(4)	
Group	0,0681	***	0,0133	*	0,0014		0,0057	
	0,0105		*0,0042*		*0,0018*		*0,0668*	
Size	0,0026		0,0113	***	-0,0054	***	3,47E-06	**
	0,0026		*4,58E-05*		*0,0007*		*1,58E-06*	
Age	-0,0004	***	-0,0001	***	-4,90E-05	**	-0,0021	***
	0,0001		*1,37E-05*		*1,96E-05*		*0,0007*	
ROA					-0,0073			
					0,0060			
Risk							0,6325	
							0,5005	
Growth							-0,0675	**
							0,0332	
Leverage			-0,0062	***	0,0001			
			0,0008		*0,0004*			
Tangibility							2,2951	***
							0,1905	
Intercept	0,0642	***	0,0267	*	0,1090	***	0,3879	***
	0,0276		*0,0154*		*0,0067*		*0,1413*	
Industry dummies	Yes		Yes		Yes		Yes	
F	4,22	***	14,42	***	13,65	***	15,05	***
R2	0,0157		0,0497		0,0533		0,0609	
Number of Observations	5598		5598		5598		5598	

Overall, the results in Table 3.8 show that grouping small businesses is an organizational strategy that promotes growth. The results support that SBG ICMs are efficient, which increases their internal financing capacity, and ultimately their capacity to invest. Several alternative explanations can also explain why SBGs are more dynamic than standalone firms. First, structuring control in a BG permits it to raise external capital while maintaining control. If small business owners value control, creating an SBG reduces the cost of opening up firm capital to external investors. Second, the higher dynamism and performance of SBG-affiliated firms can enhance their ability to attract external capital. Finally, SBGs possess an option of partial liquidation, which reduces bankruptcy costs (Bianco and Nicodano, 2002). Unlike conglomerates, BGs are not legally obliged to bail out affiliated firms, because group firms are legally distinct. This "fractioning of liability" has several advantages. Controlling firms may choose to concentrate the bankruptcy risk in a group firm, by concentrating the external debt in this firm. However, such strategy might be costly if creditors anticipate this expropriation. Moreover, controlling shareholders can secure assets in one firm, and concentrate business risk in other group firms. Indeed, if the riskier firm goes bankrupt, the controlling shareholder still controls the assets necessary to continue production. Such strategy then reduces SBG controlling shareholder wealth exposure to business risk, which increases its incentive to invest. We explore these issues in more detail in Chapter 4.

3.4.3 Effect of SBG characteristics on performance and risk

Table 3.9 reports estimations of the effect of SBG characteristics on growth, profitability and risk. Panel A investigates this issue at the firm level and Panel B at the group level. Columns 1 to 3 show that the type of SBG controlling firm (holding or not) does not affect the results obtained in Sections 3.4.1 and 3.4.2. However, comparison of the economic significance of the coefficients underlines some differences across SBG types. Control by a holding company promotes more strongly the development of SBGs and reduces their risk, but limits their profitability.

Columns 4 to 6 explore the effect of diversification on affiliated firms and SBG performance. The results indicate that firms affiliated with an SBG are more dynamic and more profitable, with the exception of firms affiliated with geographically diversified SBGs. The results also show that diversification strategies do not limit affiliated firm risk in comparison with standalone firms. However, comparison of the coefficients underscores that firms affiliated with a diversified SBG are less risky than firms affiliated with an SBG with related diversification. Therefore, the results provide some support to the fact that diversification reduces affiliated firm risk. Comparison of the results at the SBG level shows that related and unrelated diversification enhances SBG growth. However, geographical diversification and vertical integration do not affect significantly SBG growth. Furthermore, Column 5 indicates that only SBGs with unrelated diversification outperform standalone firms. There is no evidence of a diversification discount in SBGs. Finally, Column 6 indicates that diversified SBGs support as much risk as standalone firms.

Table 3.9: Influence of SBG characteristics on affiliated firms and SBGs performances.

Columns 1 to 3 report estimates of the coefficients when estimating equation 1, 3, and 4, using the ordinary least square method. Panel A reports estimation for the firm-level sample, and panel B for the group-level sample. The table only reports the coefficient estimation for the variables of SBG characteristics but the estimation includes all equations variable. *Investment rate* is the entity growth of capital invested. *ROA* is the entity ratio of EBITDA on total assets. *Operating risk* is the entity standard deviation of ROA. *Holding* is equal to one when SBG controlling firm is a holding. *Non-Holding* is equal to one when the SBG controlling firm is not a holding. *Related* is equal to one when the SBG is not diversified. *Geographical* is equal to one when the SBG is geographically diversified. *Unrelated* is equal to one when the SBG is composed of firms in unrelated industries. *Vertical* is equal to one when there is vertical integration between group firms. All financial variables are average values over the study period. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that a coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level.

	Investment Rate		ROA		Operating Risk		Investment Rate		ROA		Operating Risk	
	(1)		(2)		(3)		(4)		(5)		(6)	
Panel A: Firm-level sample												
Holding	0,0127	***	0,0299	***	-0,0020							
	0,0005		*0,0042*		*0,0018*							
Non Holding	0,0243	**	0,0253	***	0,0002	*						
	0,0024		*0,0020*		*0,0001*							
Related							0,0334	*******	0,0215	*******	0,0011	*******
							0,0047		*0,0038*		*0,0002*	
Geographical							0,0496	******	-0,0009		-0,0007	
							0,0254		*0,0205*		*0,0086*	
Horizontal							0,0219	***	0,0280	***	0,0002	
							0,0025		*0,0021*		*0,0009*	
Vertical							0,0198	***	0,0181	***	-0,0020	
							0,0044		*0,0035*		*0,0015*	
F	27,10	***	94,68	***	60,11	***	25,12	***	87,82	***	55,54	*******
R	0,0259		0,0849		0,0556		0,0260		0,0853		0,0557	
NB	24522		24522		24522		24522		24522		24522	
Panel B: Group-level sample												
Holding	0,1532	***	-0,0063		-0,0077							
	0,0224		*0,0084*		*0,0038*							
Non Holding	0,0558	***	0,0115	***	0,0026							
	0,0109		*0,0041*		*0,0018*							
Related							0,0441	*******	0,0052		0,0019	
							0,0121		*0,0045*		*0,0020*	
Geographical							0,0092		0,0120		-0,0046	
							0,0377		*0,0141*		*0,0063*	
Horizontal							0,1056	***	0,0156	***	0,0014	
							0,0138		*0,0052*		*0,0023*	
Vertical							0,1260	*	0,0002		-0,0102	
							0,0764		*0,0286*		*0,0128*	
F	4,61	***	10,72	***	13,41	***	4,31	***	9,86	***	12,15	***
R2	0,0195		0,0441		0,0546		0,0197		0,044		0,0537	
NB	5598		5598		5598		5598		5598		5598	

Overall, the results in Table 3.9 confirm that SBG affiliation and grouping small businesses promote growth and that there is no mutual insurance within SBGs. Further, the results do not support the diversification discount hypothesis in SBGs; the less efficient

strategy is geographic diversification. Finally, the results indicate that the type of controlling firm does influence SBG performance effect. The presence of a holding company in the SBG enhances affiliated firms and SBGs growth; this might be explained by the fact that holding companies benefit from higher levels of leverage given that they are generally created by leveraged buyout. The results in Table 3.9 confirm that the characteristics of SBGs influence their growth, profitability and risk. However, the effect of group characteristics does not undermine the performance effect of SBGs.

3.5 Conclusion

This study explores whether formation of an SBG acts as an organizational strategy that promotes SME growth. This paper presents original results on the effect of firm affiliation on a SBG and of the formation of SBGs on a large sample of French SMEs over the period 1998-2007. The results show that grouping small businesses is a growth strategy: SBGs promote affiliated firm dynamism and invest more than their standalone counterparts. Our results indicate that grouping SMEs enhances growth because SBG ICMs facilitate a more efficient allocation of financial resources to group firms. Therefore, SBGs have higher profitability, which increases their internal financing capacity for investing. Finally, the results show that all types of SBG over-perform standalone firms with the exception of geographically diversified SBGs. Overall, the results support that grouping small businesses allows them to reduce their growth constraints.

This paper contributes to the literature in several ways. It presents a study of SBGs, which, to our knowledge, is an unexplored topic in the economics and finance literature. On one hand, this exploration contributes to the small businesses literature by focusing on an

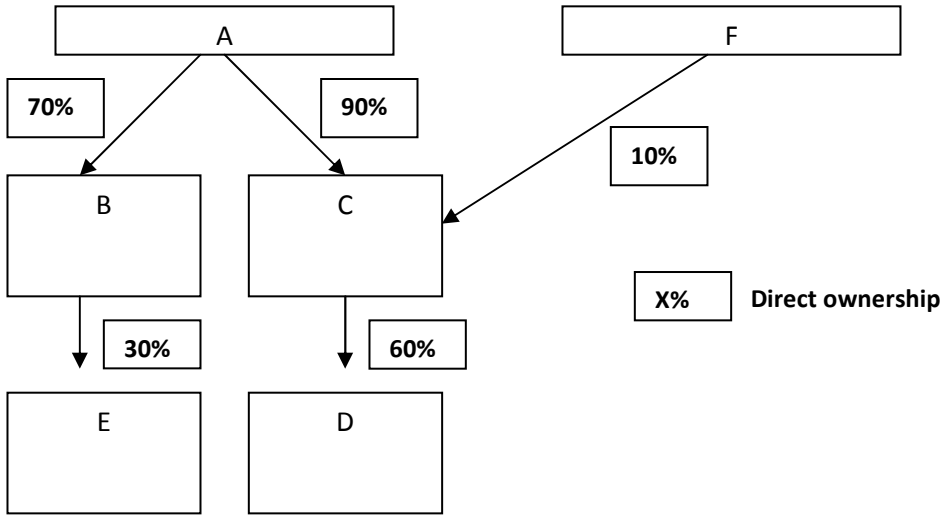
alternative growth strategy. On the other, it contributes to the literature on the benefits and costs of group affiliation. First, it tests whether affiliation with a BG is a response to capital market imperfection, in the specific context of small businesses, which suffer from important information imperfections. Results point out that affiliation to a SBG alleviates small businesses growth constraints and favors their dynamism. Second, we work on SBG aggregate data, which is a novel approach in the study of BGs. Thanks to this approach, we are able to show that grouping small businesses is an organizational strategy that promotes small businesses growth.

This paper leaves several questions unanswered, which could lead to interesting future research. This study does not explore the potential endogeneity of SBG. Indeed, decisions of affiliation or integration into a SBG can result from the firm dynamism and profitability. Unfortunately our data is limited to a cross section observation of SBGs, only access to data that retraces the formation of SBGs would allow to explore this issue. Further, this study does not explore the dynamics of SBGs: are they formed through creation of new businesses or by acquisition of existing firms? Although comparison of ages between controlling and controlled firms indicates that SBGs are more likely to be created through creation rather than acquisition, we do not present formal evidence on this issue. Moreover, we do not assess differences in the effect of small business affiliation on SBGs and on large BGs. Finally, this study does not explore alternative motivations to structure into a SBG. For example the existence of size thresholds for legal and social obligations can be an important factor explaining the choice of this peculiar growth mode.

Appendices

Appendix 3.A: Example of a BG identified in the initial database

Figure 3.1: Example of ownership links between firms



In the ownership structure represented in Figure 3.1, firm A has an ownership stake of 90%*60%=48% in firm D. However, A majority controls[60] firm C, which in turn majority controls firm D; thus A controls D. Firm A also controls firm B, given that it direct stake is higher than 50%. Firms F and E are independent firms because they neither are directly controlled at a majority by another firm or directly control at a majority another firm. Overall, the business group is formed by firms A, B, C and D.

[60] The term majority control is used to describe the situation in which a firm controls another firm through holding a majority (>50%) of the controlled firm's shares.

Appendix 3.B: Database on ownership links from Coface Services

In the database, the firm official fiscal identity number (SIREN) uniquely identifies each firm. For each ownership link, the database provides two SIREN: one for the *controlling firm* and the other for the *controlled firm*.

Level (l): indicates the length of the control chain between the two firms. This variable is equal to 1 if the controlling firm directly owns the controlled firm. Values greater than 1 correspond to indirect ownership through a vertical chain of holdings of length *l*.

Ownership (o): the real holding of the controlling firm in the controlled firm at level *l.* For level=1, the ownership variable defines the direct ownership matrix (D), which lists direct ownership across firms. For level>1, the ownership variable defines the indirect ownership matrix (I) at level *l*. Indirect holdings are the product of direct ownership along the control chain.

Number of links (n): the number of firms that have an ownership stake in the firm.

We fill in the ownership structure illustrated in Figure 3.1 in Table 3.10:

Table 3.10: Initial database structure

Controlled firm	Controlling firm	Level	Number of links	Ownership
B	A	1	1	70%
C	A	1	2	90%
D	A	2	3	48%
E	A	2	2	21%
E	B	1	2	30%
D	C	1	3	60%
C	F	1	2	10%
D	F	2	3	6%

Appendix 3.C: Procedure for identifying BGs according to criteria of effective majority control

The group identification procedure uses the criterion of majority control; a BG corresponds to a chain of majority control relationships. The majoritization rule (see, for example, Chapelle and Szafarz, 2005) implies a dichotomization of ownership to find majority control. Whenever the shareholder's ownership stake is greater than 50%, we assume that control is total. In turn, we assume that other shareholders have no effective control. This criterion seems optimal for this study. Indeed, the sample concerns privately held firms where ownership is often highly concentrated, yet this threshold avoids the counterintuitive findings for situations involving two controlling firms.

First, in order to identify the control chains and establish whether control is effective at each chain's link, we identify the ultimate holding level for each controlled firm. We create a variable *N* that indicates the higher holding level for each of the controlled firms in the initial database. The highest level of holding found in the database is 17. Contrary to the level

variable that characterizes the relation of a controlled firm with a controlling firm, the *N* variable is unique for each controlled firm and indicates the higher level at which the firm is held.

Second, a binary variable indicates whether a firm is subject to direct effective control from the firm holding it directly. The majoritization rule is applied using the ownership (o) variable when level=1 to obtain the *effective control* (*ec*) variable, which takes the value 1 if direct ownership of the firm is higher than 50%, and 0 otherwise.

Third, the *effective control level (S)* is the highest level at which the firm is effectively controlled all along the chain of control. In order to identify the effective control level of firms in the database, the procedure starts from the lowest level of control and goes up along the control chain in order to observe whether there is a control rupture. The level at which this occurs returns the value of *S*.

Fourth, we identify the controlling firm (*ActS)* at level S. When *N* is greater than 2, a procedure of N steps is required. We first identify whether the firm is effectively controlled at level 1, and then whether the controlling firm at level 1 (Act1) is effectively controlled, and so on, using the effective control variable (c) that returns the direct ownership between two firms. These transformations modify the structure of the database, as the observations are the controlled firms, and not every pair of controlled/controlling firms as illustrated in Table 3.11. Next, the table reports that vertical control chains are the observations and the variables indicate the chain of control. One fact not captured in the example below is that the database also contains the information on direct ownership between firms at each level *DS.*

Table 3.11: Identification of the vertical chains of control

Firm	N	S	ActN1	ActN2	ActNi	ActN17	Ultimate controlling firms
B	1	1	A	.	.	.	A
C	1	1	A	.	.	.	A
D	2	2	C	A	.	.	A
E	2	0	.	.	.	.	.

We need a transformation to identify groups. The aim of this transformation is to make the BGs the observations instead of the vertical chains of control. We index each controlled firm by both its level of control (l) and the horizontal branches through which it belongs to (b). This allows us to obtain the following group-level variables. *Level* indicates the length of the vertical control chain in the BG. *Nbfirms* is a variable indicating the number of firms in the BG, including the controlling firm. *Branches* provides information regarding the geometry of the group by indicating the number of horizontal chains in the BG. If this variable is equal to 1, the BG is a vertical chain of control. If it is greater than 1, the BG is a mix between a horizontal and vertical control chain, which is the case of the example BG below.

Table 3.12: Identification of BGs

Ultimately controlled firm	Act11	Act12	Level	NBfirms	Branches	Controlling firm	Group
D	C	D	2	4	2	A	1
E				.	.	.	0

Appendix 3.D: Construction of the vertical integration indicator

This appendix explains how we built the indicator of vertical integration from the matrix of trade credit default of Bardos and Stili (2006).

Table 3.13:.An example from the matrix

Client/Furnisher	Retail trade (A)	Manufacturing (B)	Services to firms (C)
Retail trade (A)	13,2%	6,3%	12,5%
Manufacturing (B)	51,9%	30,5%	7,1%
Services to firms (C)	4,3%	7,4%	15,1%

An SBG with two industries

M: indicates the controlling firm; D: indicates the controlled firm. And, M=A: indicates that the controlling firm is in the retail trade industry. We consider that there is forward integration whenever the controlling firm is in an industry that is the furnisher of the industry of the controlled firms and that the default rate is higher than 10%. We consider that there is backward integration whenever the controlling firm is in an industry that is a client of the industry of the controlled firms and that the default rate is higher than 10%.

Table 3.14: An example for an SBG with two industries

	Forward	Backward	Vertical
M=A D=B	0	0	0
M=B D=A	1	0	1

A SBG with more than two industries

When there are more than two industries in the SBG, we must proceed in several steps. In the first step, we create a table in which SBGs are the observation, and a variable for each industry present in the SBG, where the first variable corresponds to the controlling firm industry. Table 3.15 illustrates the case of an SBG in which firms are located in three industries.

Table 3.15: An example for an SBG in which firms are located in three industries

	Industry of the controlling firm	**Industry of controlled firms**	**Industry of controlled firms**
SBG 1	A	B	C
SBG 2	B	C	A
SBG 3	C	A	B

Then for each SBG, we create a table as illustrated by Table 3.16.

Table 3.16: Illustration of the second step of the procedure

		Forward	**Backward**	**Vertical**
SBG1	M=A; D=B	0	0	0
SBG1	M=A; D=C	0	1	1
SBG2	M=B; D=C	0	0	0
SBG2	M=B; D=A	0	1	1
SBG3	M=C; D=A	1	0	1
SBG3	M=C; D=B	0	0	0

The final step of the procedure consists of aggregating the information for each SBG to obtain a table, such as Table 3.17 illustrates.

Table 3.17: Illustration of the final step of the procedure

	Forward	**Backward**	**Vertical**
SBG1	0	1	1
SBG2	0	1	1
SBG3	1	0	1

Appendix 3.E: Description of variables

Table 3.18: Explanatory variables

		Variable	Formula	Definition
Explanatory variables	SBG Affiliation	***Affiliated***		Is equal to 1 if the firm belongs to a SBG and to 0 if it is an independent firm
		Group		Is equal to 1 if the observation corresponds to a SBG, and to 0 if it is an independant firm

Table 3.19: Group-level variables

		Variable	Formula	Definition
Group Level variables	Technological	***Size***		Aggregate of group firms size.
		Industry		Industry that represents the highest level of tunrover in the SBG.
		Age		Age of SBG controlling firm.
	Characteritistics	***NDEP***		Number of departments in the SBG.
		NIND		Number of industries in the SBG.
		Holding		Is equal to 1 if SBG controlling firm is a holding, and 0 else.
		Diversified		Is equal to 1 if either NDEP>1 or NIND>1, and 0 else.
		Geo		Is equal to 1 if NDEP>1 and NIND=1, and 0 else.
		Vertical		Is equal to 1 is bacward is equal to 1 or 0, and 0 else.

Table 3.20: Explained variables

This Table presents the explained variables computed at the firm level. To compute these variables at the SBG level, we simply use the aggregate accounting of SBG accounting information to compute the following ratios.

		Variable	Formula	Definition
Explained variables	Profitability	***ROA***	$ROA_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{EBITDA_{i,t}}{TotalAsset_{i,t}}$	Return on asset (ROA) computed as the ratio of earnings before tax, interest and depreciation (EBITDA) to total firm assets.
	Growth	***Investment Rate***	$InvestmentRate_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{ProductiveAssets_{i,t}}{ProductiveAssets_{i,t-1}} - 1$	Average growth rate of productive assets. Where productive assets is the sum of gross long-term assets and working capital minus financial assets.
	Risk	***ROA volatility***		Standard deviation of ROA over the period.
	Debt capacity	***Financial Leverage***	$FinacialLeverage_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{ExternalFinancialDebt_{i,t}}{Equity_{i,t}}$	Ratio of firm external financial debt to equity. To compute external debt, we subtract financial debt from firms that hold capital in the firm.

Table 3.21: Control variables

		Variable	Formula	Definition
Control variables	Technological	***Size***		Log of firm total assets minus financial assets
		Industry		Dummy variable indicating whether a firm belongs to a particular industry in the 19 industry classification scheme (similar to NACE classification)
		Age		Log of the number of years since the firm's creation
	Financial	***Tangibility***	$Tangibility_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{FixedAssets_{i,t}}{TotalAssets_{i,t}}$	Ratio of firm fixed assets to total assets. Fixed assets correspond to long-term assets excluding financial and incorporal assets.
		Sales Growth	$SalesGrowth_i = \frac{1}{T}\sum_{t=1999}^{2007}\frac{Turnover_{i,t}}{Turnover_{i,t-1}} - 1$	Average annual growth rates of sales

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Chapter 4

Small business groups enhance performance and promote stability, not expropriation. Evidence from French SMEs.[61]

This chapter investigates the influence that a firm's distance from control has on its performance, using balance sheet information and a unique data set on small business ownership. This study fills a gap in the empirical governance literature by investigating whether there is expropriation of minority shareholders in small business groups. Contrary to observations for large business groups, results show a positive relationship between the separation of control from ownership and firm performance. Results also underline that tunneling promotes controlling shareholders' profit stability rather than profit maximization in small business groups.

Keywords: Ownership; Control; Tunneling; Small business; Performance.

[61] This chapter is in press in the Journal of Banking and Finance.

4.1 Introduction

Recent evidence shows that small business groups (SBGs) are burgeoning in developed countries. A SBG is an ownership structure where a dominant shareholder holds several firms through a control chain, a SBG size is that of a small and medium enterprise (SME).[62] According to the Banque de France, the number of French firms affiliated with SBGs has doubled over the last decade, and represent one-third of the SMEs in the country (Cayssialis et al., 2007; Nahmias, 2007). Structuring control using a SBG, rather than developing the initial business in a standalone firm is a specific growth strategy. This chapter explores entrepreneurs' motivations to adopt this strategy.

Corporate governance theory suggests that a business group is a device used to increase control without commensurate cash flows. A business group can enhance the dominant shareholder control concentration by introducing a separation between control rights and cash flow rights. Then, concentrated control allows the dominant shareholder to act in its own interest, raising concern for the expropriation of minority shareholders (Shleifer and Vishny, 1997). Under the expropriation hypothesis, excess control of dominant shareholders has a negative influence on firms' value. Empirical evidence strongly supports this hypothesis for large business groups (see Table 4.1). However, grouping SMEs might also be a growth strategy that limits dominant shareholders wealth exposure to the business risk. Indeed, indirect control of several firms, rather than control of a standalone firm, creates a "fractioning of liability" since dominant shareholder wealth exposure to the business risk is divided between group firms. This chapter investigates whether the rationale to grow the business by building a SBG is to increase dominant shareholders' private benefits

[62] SMEs are firms with annual turnover of less than 50 million Euros. This definition follows the recommendation of the EU Commission (6 May 2003).

(expropriation hypothesis) or to limit their wealth exposure to the business risk (immunization hypothesis).

At first glance, the concentrated governance structure of small business should exacerbate agency issues in SBGs. Thus, like in large family business groups, the concentration of control may lead to the expropriation of minority shareholders. More specifically, in owner-manager firms, control concentration does not improve the efficiency of monitoring, whereas the entrenchment problem persists (Bennedsen and Nielsen, 2010). Despite the concentration of control, SMEs external investors' specificities may lower business owners' propensity to extract private benefits at the expense of minority shareholders. Given SMEs' informational opacity and the illiquidity of their shares, there are two types of specific external investors in SMEs. Connected minority shareholders, such as family members, are the main source of a SME's external equity financing. In order to broaden financial resources, social connections based on trust are thus crucial for SMEs (Vos et al., 2007). The presence of connected minority shareholders diminishes the incentives to extract private benefits at their expense. Small business owners do not wish to be deprived of this source of external financing in the future. In addition, informed minority shareholders, such as venture capitalists, also finance SMEs. Their monitoring capacities limit the dominant shareholder's ability to extract private benefits. It is therefore possible to cast doubt on the relevance of the hypothesis according to which grouping small businesses allows to increase the owner private benefits of control.

Furthermore, small business owners' wealth under diversification creates an incentive to reduce their wealth exposure to the business risk. Since entrepreneurs vest an important proportion of their wealth into the business, their risk exposure is higher than that of shareholders investing their wealth in public securities (Moskowitz and Vissing-Jørgensen, 2002). This situation creates distortions in their risk incentives; they are sensitive to the

business' idiosyncratic risk. Small businesses' owners might thus favor strategies that reduce their wealth exposure to the firm's business risk. Choosing to grow via a SBG allows the dominant shareholder to immunize part of his wealth. The fact that business groups' firms have a limited liability between them reduces entrepreneurs' losses in case of a group's firm default. SBGs' owners only lose control of the assets of the defaulting firm, maintaining control over the assets of the other group's firms, which enables them to continue production. Moreover, thanks to internal transfers between group's firms the controlling shareholder can affect group firms' risk patterns. The dominant shareholder can use internal transfers in order to smooth the revenue of firms where its stakes are higher. The under-diversification of small business owners might therefore explain why they opt to grow their businesses using a SBG. On the one hand, the "fractioning of liability" limits the entrepreneur's losses in case of a group's firm default. On the other hand, it enables dominant shareholder to transfer risk toward firms where its stakes are lower, which implies a shift from value expropriation toward risk expropriation of minority shareholders.

This study empirically explores two hypotheses: the expropriation hypothesis and the immunization hypothesis. It uses a unique data set that exhaustively lists ownership links between French corporations. We identify more than 15 000 SBGs according to the criterion of majority control (a business group corresponds to a chain of majority control relationships). The database contains information on the direct and indirect cash flow rights of each firm in other firms. We use this information in order to compute the cash flow rights of controlling firms and variables of excess control. The database also provides information on firms' position in the control chain. We use this information to distinguish controlling firms from controlled firms, and assess the relative position of the firm according to its position in the control chain and the number of levels in the control chain. This chapter therefore broadens the traditional approach, which focuses on controlling shareholders excess control, by

exploring the influence of firms' distance from control on their respective performances. Complete accounting information is available for half of these SBGs for the period between 1999 and 2007.

This chapter explores the motivations for growth using a SBG rather than a standalone firm by studying the link between SMEs' governance and performance. This study first assesses the accuracy of the expropriation hypothesis in SBGs. Studies of this issue traditionally observe the influence of dominant shareholders' excess control on firms' performance. This study performs this test, but also uses the firm's position in the control chain to observe how each firm's distance from control influences its performance. We accept the expropriation hypothesis if we observe that firms more distant from control position underperform. Next, the study investigates related party transactions within SBGs by assessing the influence of the firm's distance from control on its performance sensitivity to industry and group shocks. This explores whether dominant shareholders transfer resources from firms where their stakes are low toward firms where their stakes are high, which would provide support for the expropriation hypothesis. However, a lower firm sensitivity to shocks when the firm is closer to control position provides support for the immunization hypothesis. Furthermore, we capture the influence that the business environment has on value transfers between group firms. We do this in order to test whether resources transfer from controlled firms to controlling firms relates to the objective to maintain artificially controlling firms' performance. To explore this issue, we extend the empirical setting of Bertrand et al. (2002) in order to estimate the global effect of a firm's distance from control on its performance, controlling for the type of shock. The use of internal transfers to prevent controlling firms' performance from unfavorable shocks provides support for both the immunization and the expropriation hypotheses. Indeed, such transfers reduce dominant shareholders' wealth exposure to the business risk by transferring it to minority shareholders.

The results confirm that dominant shareholders develop SBGs primarily to immunize their wealth rather than to expropriate minority shareholders. The data show a positive relationship between distance from control and firm performance. Furthermore, the firm's business environment and group performance influence related party transactions. Intra-group transfers foster controlled firms' development when shocks are favorable; however, when shocks are unfavorable, related party transactions preserve controlling firms' performance. Results support the idea that grouping small businesses favors the wealth stability of dominant shareholders; controlling firms' sensitivity to exogenous shocks is 68% lower than that of controlled firms.

This chapter corroborates that governance issues are different in SBGs as compared to large business groups. We do not find support for the he expropriation hypothesis in SBGs. This hypothesis states that structuring control in a business group is a growth strategy that permits the increase of capital while conserving the private benefits of control. Results show that SBG affiliation enhances controlled firms' performance. One explanation of this relates to the specificity of small businesses' minority shareholder that limits the possibilities for SMEs' owners to extract private benefits. Thus, in the case of small businesses, specific governance mechanisms related to close connections or/and higher monitoring abilities seems to offset the governance inefficiencies related to informational opacity and concentrated control. We find support for the immunization hypothesis, which states that structuring control in a business group is a growth strategy allowing controlling shareholders to reduce their wealth exposure to the business risk. Moreover, results show that when the business environment is unfavorable, controlling firms transfer resources out of controlled firms in order to support their performance. Overall, results indicate that dominant shareholders trade performance for reduced risk with minority shareholders in SBGs.

We structure the remainder of the chapter as follows. Section 4.2 summarizes the literature and develops the hypothesis. Section 4.3 presents the data and the methodology. Section 4.4 discusses the results. Section 4.5 concludes.

4.2 Theory and hypothesis

There are two approaches to test the hypothesis of expropriation of minority shareholders in business groups. A majority of papers focus on the relationship between excess control and firm performance (4.2.1), while other papers investigate the direction of related party transactions between controlling and controlled firms (4.2.2).

4.2.1 Excess control and firm performance

In business groups, two opposite incentive mechanisms drive firm performance: a positive effect resulting from the dominant shareholder's cash flow rights and a negative effect related to its control rights. Shleifer and Vishny (1997) argue that the negative effect stems from the fact that "large shareholders represent their own interest, which need not coincide with the interests of other investors in the firm" (p758). Securing control rights prevents dominant shareholders from losing control over the firm, which may lead to entrenched behavior. In addition, business owners might use their control rights in order to extract private benefits at the expense of minority shareholders. Hence, controlling shareholder's separation between control rights and cash flow rights within the firm influences a firm's performance. In large business groups, particularly those in emerging countries, empirical results are consistent with the expropriation of minority shareholders hypothesis. Results show that excess control is detrimental to firm value and that controlling firms divert resources out of controlled firms

(see Table 4.1). Even so, evidence on the agency cost of business groups in developed countries remains scarce. To our knowledge, no study of this topic exists on SBGs.

Even if majorities of empirical studies verify the existence of a negative relationship between the excess control of dominant shareholders and the firm's value, several arguments cast doubt on the validity of this issue. In fact, in the case of new firms, Almeida and Wolfenzon (2006) argue that controlling shareholders create dynamically new firms when the original firm starts to decline. Such a strategy would drive controlling firms' underperformance relative to controlled firms. In the case of SMEs, minority shareholders' specificity could prevent dominant shareholders from extracting private benefits. The presence of connected minority shareholders diminishes the owner's incentives to extract private benefits. The presence of informed minority shareholders with monitoring abilities, such as venture capitalists, limits a dominant shareholder's ability to extract private benefits. Therefore, the specificity of SMEs' minority shareholders makes it difficult to extract private benefits at their expense, casting doubt on the validity of minority shareholders expropriation hypothesis in SBGs.

Table 4.1: Synopsis of the empirical literature

Paper	Sample	Method	Control variable	Explained variable	Result: Expropriation of minority shareholders
Claessens et al. (2002)	Publicly traded firms in East Asia (1996).	Influence of firm's control structure on its value	Spread between control rights and ownership of controlling shareholder	Firm performance (ROA, Tobin'Q)	YES
Joh (2003)	Korean public and large private firms (1993-1997).	Influence of firm's control structure on its value	Disparity between control rights and ownership rights.	Firm performance (Profitability)	YES
Faccio et al. (2001)	European and Asian business groups (1997-2000)	Influence of firm's control structure on its value	Excess control	Dividends rate	YES, lower effect in Europe than in Asia
Bae et al. (2002)	Korean Chaebol (1981-1993)	Influence of firm's control structure on its value	Bidder category according to the shares of the controlling shareholder	Market reaction to acquisition events, event study of abnormal returns	YES
Boubaker (2007)	Large publicly traded French firms (2000)	Influence of firm's control structure on its value	Excess control	Firm performance	YES
Lins (2003)	Large firms from 18 emerging countries (1995)	Influence of firm's control structure on its value	Excess control	Firm performance	YES
Gao and Kling (2007)	Listed Chinese firms (1998-2002)	Influence of firm's control structure on its value	Belonging to a business group	Difference between accounts receivable and payable	YES
Bertrand et al. (2002)	Indian business groups (1989-1999)	Tunneling	Group and director equity interaction with exogenous shocks and group shock	Firm performance	Less sensitivity to external shocks and group shocks (Tunneling)
Cheung et al. (2009)	Acquisition and sales of assets transaction in Hong-Kong (1998-2000)	Tunneling	Identification of controlling shareholders	Difference between the transaction price and the faire value of the assets	YES. Assets are sell to firm controlling shareholder at a discount, nut acquired form then at a premium.
Berkman et al. (2009)	Publicly tradede Chinese firms	Tunneling	Related party Loan guarantee	Firm value	The likelihood of tunneling is higher in large firms with low profitability and growth prospects. Tunneling is associated with lower firm value.
Ferris et al. (2003)	Korean Chaebols (1990-1995)	Propping and Tunneling	Group affiliation	Firm excess value	Propping to the weakest members
Dow and McGuire (2009)	Japanese Keireitsu (1987-2001)	Propping and Tunneling	IGJ specific methodology to assign affliation strength and differentiating between three periods	Performance	Tunneling during strong economic times, and propping during recession.

4.2.2 Related party transactions: Propping or tunneling?

In business groups, it is possible to transfer assets and benefits through related party transactions between firms. To observe the direction of related party transactions, Bertrand et al. (2002) assess firm performance reaction to shocks to its industry and to other group firms' performance. The literature focuses on the direction of related party transactions. "Tunneling"[63] occurs when firms where dominant shareholder's stakes are high transfer resources out from firms where its stakes are low (Johnson et al., 2000). "Propping" is a transfer from higher-level firms to lower-level firms in the control chain, which intends to bail out the receiving firm from bankruptcy (Friedman et al., 2003). Bertrand et al. (2002) consider the case of Indian business groups. Their results uphold that tunneling is an issue in large business groups, providing support for the expropriation hypothesis. However, recent evidence has shown that propping and tunneling are intermingled issues. Dow and McGuire (2009) observe profit tunneling in more weakly affiliated keiretsu firms during strong economic times, but propping in those firms during recession. Such evidence relates to the mutual insurance effect of business groups[64]. Affiliated firms are, on average, less risky than independent firms, because internal transfers smooth revenue across group firms (Khanna and Yafeh, 2005).

However, entrepreneurs' wealth under diversification affects their risk incentives. Therefore, building SBGs might be a growth strategy that limits the dominant shareholder's risk exposure. Actually, commercial law recognizes the principle of a controlling firm's

[63] Johnson et al. (2000) distinguish between two types of tunneling. First, a controlling shareholder might transfer resources in its interest through internal transfers, also called self-dealing transactions. Second, a controlling shareholder can increase his control without transferring any assets through dilutive share issues. This chapter only focuses on the first type of tunneling.

[64] We detail business groups mutual insurance effect in Chapter 3 (3.2.2).

limited liability in case of the bankruptcy of an affiliated firm.[65] Consequently, indirect control of several firms, rather than control of a standalone firm, creates a "fractioning of liability" because it divides dominant shareholders control risk between group firms. This allows small business owners to secure assets in one firm and concentrate production risk in another group firm. If a lower-level group firm goes bankrupt, entrepreneurs still control the assets necessary to pursue production. Moreover, related party transactions allow to tunnel resources out of controlled firms in order to support the controlling firm's performance when the business environment is unfavorable. If grouping SMEs is a growth strategy promoting the dominant shareholder's wealth stability, distance from control will increase a firm's performance sensitivity to shocks. Overall, we should observe an inversion of the patterns of propping and tunneling in SBGs as compared to large business groups.

4.3 Data and methodology

We identify SBGs using a large database[66] provided by Coface Services, which lists 1 900 000 direct and indirect ownership links between French corporations. Sample firms are either directly or indirectly controlled at a majority[67] by a firm or group's controlling firms. They belong to business groups with a total aggregated turnover of less than 50 million Euros. We identify 15 877 SBGs[68]. SBGs are composed of an average of three firms, and the chain of control has two levels. Overall, the final sample contains 17 152 firms, of which 13 657 are controlled and 3 495 are controlling firms. Accounting information during the period from

[65] French commercial law is quite protective of controlling companies, as there are only three restrictive exceptions to this principle (French commercial code: C.COM art L.621-2; L.651-1 and L.651-1).
[66] We present details on this database in appendix 3.B.
[67] We develop the identification procedure in appendix 3.C.
[68] See Chapter 3 (3.3.4) for a detailed discussion of sample selection

1999 to 2007 is available for all firms. It comes from the Diane database, supplied by Coface Services and Bureau Van Dijk. Appendix 4.A summarizes the variables used in this study.

4.3.1 Distance from control variables

The synopsis of the literature highlights two main types of variables used to characterize the firm's control. The excess of control right over cash flow rights is the more commonly used variable (see Table 4.1). However, several authors use broader measures of the firm's distance from control—such as group affiliation, director/family ownership of the controlling firm, and vertical or horizontal structure of the group—(see Table 4.1). Given the detailed information contained in the database, we use both types of variables in order to verify whether the choice of variables affects the results. In particular, the database enables the identification of the group's controlling firms; they are included because SBGs do not consolidate their account.

Excess control variables capture the dominant shareholder's separation between ownership and control in a firm. This study uses two variables to measure excess control. The first variable, the controlling firm's **ownership (CF)** in a firm, increases as the controlling firm's excess control diminishes. The second variable is the **control ratio**: the ratio of controlling firms' control stakes on their ownership, where control is the weakest direct ownership stake in the chain of control (Claessens et al., 2000)[69]. The difference between these two variables relates to the continuity of control. Indeed, the ownership variable assumes that control is a discrete variable, whereas the control ratio considers control to be a continuous variable.

[69] Appendix 3.A offers an example illustrating how we compute these two variables.

Alternatively, position variables indicate the firm's vertical position in the control chain. That is, position is equal to 1 when the firm is the controlling firm, 2 when the firm is directly controlled, and so on. Using this variable as a starting point, we create several variables indicating the firm's distance from control. First, the **controlling** variable is equal to 1 if the firm is the group controlling firm and 0 otherwise. Second, the **ultimately controlled** variable takes a value of 1 if the firm is the ultimate controlled firm and 0 otherwise. Finally, the **relative position** variable indicates the position of the firm relative to the number of vertical levels in the control chain; it is the ratio of the number of levels in the control chain to the firm's position. An increase in relative position indicates that firms are closer to the control position. Position variables are a broader approach than excess control variables. On the one hand, they indicate the likelihood of introducing separation between control and ownership. Firms distant from the controlling firm are more prone to experience a significant separation between control and ownership. On the other hand, position variables capture a firm's control value. Even if there is a separation between control and ownership, it may not be in the dominant shareholder's interest to hurt firms high in the control chain. This is because losing control over these firms implies losing control over the firms lower in the control chain.

Descriptive statistics reported in Table 4.2 underline that in the sample, controlling firms' ownership concentration in controlled firms is high (76%) in comparison to the one in large business groups. In addition, the average separation between control and ownership in sample firms is rather low.

Table 4.2: Sample descriptive statistics

Panel A: Descriptive statistics full sample	Nb	Mean	Standard Error	Median
ROA	105549	0,1392	0,1572	0,1140
ROE	105549	0,0757	0,0859	0,0544
ROAf	105549	0,1268	0,0358	0,1170
ROAg	67360	0,1267	0,0340	0,1202
Size (Sales in K€)	105549	6452	6136	4216
Age	105549	15,8132	12,5324	16,3580
Leverage	105549	3,4860	4,3815	2,0579
Sales Growth	105549	0,1061	0,4279	0,0540
Panel B: Average financial variables on the period				
ROA	17152	0,1366	0,1439	0,1139
ROE	17152	0,0753	0,0770	0,0589
Size (Sales)	17152	6430	6103	4163
Leverage	17152	3,8345	4,1345	2,4277
Sales Growth	17152	0,1234	0,3226	0,0719
Panel C: Controlled firms control structure caracteristics				
CF	13657	0,7609	0,2374	0,8464
Control ratio	13657	1,0254	0,1516	1,0000
Relative Position	17152	1,3325	0,4633	1,0000
Panel D: Groups characteristics				
Nbfirms	15877	2,9963	1,6100	2,0000
Level	15877	2,1353	0,3700	2,0000
Group Size (Aggregate sales in K€)	15877	9880	11260	5923

4.3.2 Methodology

We use three empirical settings to test the hypotheses of expropriation and immunization. First, we estimate equation 4.1 to test whether a firm's distance from control influences its performance.

$$Perf_{i,t} = \alpha + \beta_1 CS_i + \sum_{n=2}^{N} \beta_n Controls_{n,i,t} + \varepsilon_{i,t} \quad (4.1)$$

The dependent variable is either the firm's return on asset (ROA) or the return on equity (ROE) in year t. The ROA is used to proxy for the firm's economic performance. Indeed, ROA is not influenced by firms' financial and amortization policies. In this case, the ROA fully reflects the firm's operating performance. The ROE measures the actual return for shareholders; it is an indicator of the firm's financial performance. The analysis focuses on the coefficients on firms' distance from control (CS_i). If we verify the expropriation hypothesis, then we should observe a negative influence of firm distance from control[70] on its performance. We also include several control variables, which also influence firm performance. The firm's industry controls for the firm's performance opportunities—such as the importance of economies of scale in the industry where the firm operates—as well as characteristics of the market, including its size and the intensity of competition. The equation also includes control variables for the firm's age and size. In addition, the firm's leverage and sales growth control for the firm's financial structure and growth opportunities. Finally, we introduce year dummies to control for the business cycle impact.

[70] The control ratio and ultimately controlled variables have higher values when the firm's distance from control is higher, whereas the ownership, controlling and relative position variables have lower values as the distance from control increases. Therefore, if we verify the expropriation hypothesis, one should observe a positive coefficient on ownership, controlling and relative position variables and a negative coefficient on the control ratio and ultimately controlled variable.

The second objective is to assess the direction of related party transactions using the firm's performance sensitivity to shocks. We estimate equation 4.2 to investigate whether a firm's distance from control affects its performance sensitivity to industry shocks.

$$ROA_{i,t} = \alpha + \beta_1 ROAf_{i,t,k} * CS_i + \beta_2 ROAf_{i,t,k} + \sum_{n=3}^{N} \beta_n Controls_{n,i,t} + \varepsilon_{i,t} \quad (4.2)$$

We measure shocks at the industry level using the industry-adjusted performance $ROAf_{i,t,k}$ (the assets-weighted average ROA of firms belonging to the same industry)[71]

$$ROAf_{i,t,k} = \frac{\sum_{j=1}^{J} [TotalAsset_{j,t,k} \times ROA_{j,t,k}]}{\sum_{j=1}^{J} TotalAsset_{j,t,k}},$$

where j≠i and k is one of the 60 industries. The interaction term between distance from control variables and industry-adjusted performance ($ROAf_{i,t,k} * CS_i$) assesses differences in a firm's sensitivity to industry shocks explained by the firm's distance from control. According to Bertrand et al. (2002), if controlling shareholder transfers value out of a firm, then firm performance sensitivity to exogenous shocks is lower. If we verify the expropriation hypothesis, distance from control should diminish a firm's sensitivity to shocks. However, if we verify the immunization hypothesis, distance from control should increase a firm's performance sensitivity to shocks. Control variables are the same as equation 4.1, except that we exclude industry dummies since this would be redundant with the adjusted performance measure.

[71] To compute the industry-adjusted performance, we use the French official industry classification of 60 industries (NAF). We exclude the firm when computing the industry-adjusted performance to avoid a mechanical correlation.

We estimate equation 4.3 to capture the relationship between a firm's distance from control and its performance sensitivity to shocks to the group's performance.

$$ROA_{i,t} = \alpha + \beta_1 CS * ROAg_{i,t,g} + \beta_2 ROAg_{i,t,g} + \beta_3 ROAf_{i,t,k} + \sum_{n=4}^{N} \beta_n Controls_{n,i,t} + \varepsilon_{i,t} \quad (4.3)$$

Shocks to group performance are captured using group firms' average industry-adjusted performance, excluding firm i ($ROAg_{i,t,g}$), as follows:

$$ROAg_{i,t,g} = \frac{\sum_{j=1}^{J} [ROAf_{j,t,g}]}{Nbfirms_g - 1},$$

where j≠i and g indicates the business group. To estimate properly predicted group performance, complete accounting information is required for all group firms, which restricts the sample. The interaction term between the firm's distance from control and group shocks ($CS * ROAg_{i,t,g}$) assesses differences in the firm's performance sensitivity to group performance that result from its distance from control. We maintain the firm's industry-adjusted performance in the model specification in order to avoid overlapping in the case where two or more group firms belong to the same industry.

The third objective is to explore whether the flow of resources between group firms depends on the type of shocks (favorable or unfavorable). This is done to assess whether internal transfers aim at immunizing the controlling shareholder's wealth. We accomplish this by observing the global effect that a firm's distance from control has on its performance. We introduce the firm's distance from control as an independent variable in equations 4.2 and 4.3, which lead to the specifications of equations 4.4 and 4.5.

$$ROA_{i,t} = \alpha + \beta_1 CS_i + \beta_2 ROAf_{i,t,k} * CS_i + \beta_3 ROAf_{i,t,k} + \sum_{n=4}^{N} \beta_n Controls_{n,i,t} + \varepsilon_{i,t} \quad (4.4)$$

$$ROA_{i,t} = \alpha + \beta_1 CS_i + \beta_2 CS_i * ROAg_{i,t,g} + \beta_3 ROAg_{i,t,g} + \beta_4 ROAf_{i,t,k} + \sum_{n=5}^{N} \beta_n Controls_{n,i,t} + \varepsilon_{i,t} \quad (4.5)$$

In equations 4.4 and 4.5, the sensitivity of firm performance to variations in firm distance from control is:

$$\frac{\Delta ROA_{i,t}}{\Delta CS} = \beta_1 + \beta_2 * ROAf_{i,t,k} \quad (4.6)$$

for equation 4.4 and

$$\frac{\Delta ROA_{i,t}}{\Delta CS} = \beta_1 + \beta_2 * ROAG_{i,t,g} \quad (4.7)$$

for equation 4.5. Departing from equations 4.6 and 4.7, we compute the industry-adjusted and group performance thresholds for which distance from control influence on firm performance shifts from being positive to negative. This setting helps to determine whether the business environment influences the issues of propping and tunneling. If tunneling occurs when the

business environment is unfavorable, this provides support both to the immunization and the expropriation hypotheses.

4.4 Results

This section reports results on the influence of the firm's distance from control on the firm's performance (4.4.1), and on the firm's sensitivity to industry and group shocks (4.4.2).

4.4.1 Impact of distance from control on firm's individual performance

Table 4.3 reports results of the influence of a firm's distance from control on the firm's ROA. Columns 1 and 2 indicate that controlling firms' cash flow rights have a negative influence on their economic performance. On the contrary, the relationship between the separation of control from ownership and the firm's ROA is positive (Columns 3 and 4). The sign on the coefficients for the position variables confirms these results. Controlling firms demonstrate an inferior economic performance, whereas ultimately controlled firms outperform other firms (Columns 5 to 10). The influence that a firm's distance from control has on its performance is economically important compared to the other explanatory variables.

Table 4.3: Influence of firms' distance from control on economic performance

Columns 1 to 10 report estimates of the coefficients when estimating equation 1, using the ordinary least square method. The explained variable is the annual ROA of the firm. *CF* is the cash flow rights of the controlling firm. *Control Ratio* is the ratio of control computed according to the weakest link method and the cash flow rights of the controlling firm. *Controlling* is a binary variable that takes the value 1 if the firm is the business group controlling firm and 0 otherwise, *Ultimately Controlled* is a binary variable that takes the value 1 if the firm does not control any other firm. *Relative Position* is the ratio of the number of levels of control in the business group and the position of the firm, *Size* is the log of the firm's annual turnover. *Age* is the log of firm age. *Leverage* is the ratio of firm debt to total liabilities. *Growth* is the firm's annual turnover growth rate. *Y 1999 to Y 2006* are year dummies where the year 2007 is the reference. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that a coefficient is significant at the 1% level according to the t-test, ** at the 5% level, and * at the 10% level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CF	-0,0269***	-0,0284***								
	0,0021	*0,0020*								
Control Ratio			0,0182**	0,0207***						
			0,0034	*0,0034*						
Controlling					-0,0305***	-0,0362***				
					0,0012	*0,0012*				
Ultimately Controlled							0,0168***	0,0176***		
							0,0010	*0,0010*		
Relative Position									-0,023***	-0,0260***
									0,0011	*0,0011*
Size	0,0049***	0,0066***	0,0043***	0,0060***	0,0043***	0,0060***	0,0056***	0,0074***	0,0053***	0,0072***
	0,0005	*0,0005*	*0,0005*	*0,0005*	*0,0005*	*0,0005*	*0,0006*	*0,0005*	*0,0005*	*0,0005*
Age	-0,0139***	-0,0237***	-0,0147***	-0,0245***	-0,0119***	-0,0214***	-0,0132***	-0,0229***	-0,0126***	-0,0222***
	0,0007	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*
Leverage		-0,0068***		-0,0068***		-0,0070***		-0,0068***		-0,0069***
		0,0001		*0,0001*		*0,0001*		*0,0001*		*0,0001*
Growth		-0,0041***		-0,0043***		-0,0039***		-0,0040***		-0,0038***
		0,0011		*0,0011*		*0,0011*		*0,0011*		*0,0011*
Y 1999	0,0129***	0,0216***	0,0126***	0,0213***	0,0129***	0,0219***	0,0134***	0,0221***	0,0134***	0,0222***
	0,0023	*0,0022*	*0,0023*	*0,0022*	*0,0023*	*0,0022*	*0,0023*	*0,0022*	*0,0023*	*0,0022*
Y 2000	0,0135***	0,0219***	0,0133***	0,0216***	0,0135***	0,0221***	0,0140***	0,0223***	0,0140***	0,0225***
	0,0022	*0,0021*	*0,0022*	*0,0021*	*0,0022*	*0,0021*	*0,0022*	*0,0021*	*0,0022*	*0,0021*
Y 2001	0,0150***	0,0220***	0,0148***	0,0217***	0,0150***	0,0223***	0,0154***	0,0224***	0,0154***	0,0225***
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*
Y 2002	0,0091***	0,0140***	0,0089***	0,0138***	0,0091***	0,0142***	0,0094***	0,0144***	0,0094***	0,0145***
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*
Y 2003	0,0012***	0,0059***	0,0010	0,0057***	0,0012	0,0061***	0,0016	0,0062***	0,0016	0,0064***
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0020*	*0,0021*	*0,0021*	*0,0021*	*0,0021*
Y 2004	0,0040***	0,0073***	0,0038*	0,0071***	0,0040*	0,0074***	0,0043**	0,0076***	0,0043**	0,0077***
	0,0021	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*
Y 2005	-0,0043	-0,0020	-0,0044	-0,0021	-0,0043**	-0,0020	-0,0041**	-0,0018	-0,0041**	-0,0018
	0,0021	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0021*	*0,0020*
Y 2006	-0,0044	-0,0029	-0,0045	-0,0029	-0,0044**	-0,0028	-0,0042**	-0,0027	-0,0042**	-0,0027
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0021*
Intercept	0,1341***	0,1731***	0,1013***	0,1369***	0,1165***	0,1552***	0,0939***	0,1309***	0,1353***	0,1757***
	0,0053	*0,0052*	*0,0063*	*0,0063*	*0,0052*	*0,0051*	*0,0054*	*0,0054*	*0,0052*	*0,0052*
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F	287,87	416,73	281,92	410,34	307,06	445,60	292,33	421,54	299,84	432,42
R2	0,0662	0,0996	0,065	0,0982	0,0703	0,1057	0,0672	0,1006	0,0688	0,1029
Number of Observations	105549	105549	105549	105549	105549	105549	105549	105549	105549	105549

Table 4.4 indicates that using average values over the period provides similar estimations. Thus, the volatility of small businesses' accounting data does not drive the results. Moreover, the coefficients of year dummies are statistically significant, but their economic significance is extremely low; the business cycle does not drive the sample.

Table 4.4: Influence of firms' distance from control on average economic performance from 1999 to 2007

Columns 1 to 10 report estimation of the coefficient when estimating equation 1, using ordinary least square method. The explained variable is the average ROA of the firm over the period 1999 to 2007. *CF* is the cash flow rights of the controlling firm, *Control Ratio* is the ratio of control computed according to the weakest link method and the cash flow rights of the controlling firm, *Controlling* is a binary variable that takes value 1 if the firm is the business group controlling firm and 0 else, *Ultimately Controlled* is a binary variable that takes value 1 if the firm does not control any other firm, *Relative Position* is the ratio of the number of level of control in the business group and the position of the firm, *Size* is the log of the firm's annual turnover, *Age* is the log of firm age, *Leverage* is the ratio of firm debt on total liabilities, *Growth* is the firm's annual turnover growth rate. The regression also controls for industry dummies. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the t test, ** at 5%, and * at 10%.

	(1)	(2)	(3)	(4)	(5)
CF	-0,0004***				
	0,0000				
Control Ratio		0,0345***			
		0,0026			
Controlling			-0,0376***		
			0,0028		
Ultimately Controlled				0,0166***	
				0,0022	
Relative Position					-0,0252***
					0,0024
Size	0,0021*	0,0022*	0,0021*	0,0035***	0,0033***
	0,0012	*0,0012*	*0,0012*	*0,0012*	*0,0012*
Age	-0,0172***	-0,0173***	-0,0172***	-0,0189***	-0,0181***
	0,0016	*0,0016*	*0,0016*	*0,0016*	*0,0016*
Leverage	-0,0069***	-0,0069***	-0,0069***	-0,0066***	-0,0067***
	0,0003	*0,0003*	*0,0003*	*0,0003*	*0,0003*
Growth	0,0094***	0,0094***	0,0094***	0,0086***	0,0091***
	0,0033	*0,0033*	*0,0033*	*0,0033*	*0,0033*
Intercept	0,1828***	0,1466***	0,1826***	0,1588***	0,2016***
	0,0109	*0,0113*	*0,0109*	*0,0115*	*0,0111*
F	109,18	108,91	109,17	101,80	104,85
R2	0,1131	0,1128	0,1130	0,1062	0,1091
Number of Observations	17152	17152	17152	17152	17152

Estimations of the firms' ROE, displayed in Columns 1 to 5 of Table 4.5, confirm that firms closer to control positions have, on average, a lower performance. In order to determine whether expropriation of minority shareholders occurs though intra-group loans or asset transfers, we introduce the firm's ROA as a control variable. In this setting, the controlling firm's cash flow rights positively influence the firm's financial performance (Column 6). Moreover, ultimately controlled firms have, on average, an inferior financial performance (Column 9), and the relative position variable positively influences firm financial performance (Column 10). Results in columns 6, 9 and 10 support the expropriation hypothesis. However, the separation between control and ownership has a positive influence on a firm's financial performance (Column 7). The relationship between the controlling status of firms and their ROE, when we control for firms' ROA, is insignificant (Column 8). Results in columns 7 and 8 contradict previous findings, thus evidence on the expropriation of minority shareholders through financial operations and/or asset transfers is limited.

The evidence reported in this section shows that distance from control has a positive influence on a firm's performance. Results do not support the hypothesis that minority shareholders' expropriation is an issue in SBGs.

Table 4.5: Influence of firms' distance from control on financial performance

This table report estimation of the coefficient when estimating equation 1, using ordinary least square method. The explained variable is the annual ROE of the firm. *CF* is the cash flow rights of the controlling firm, *Control Ratio* is the ratio of control computed according to the weakest link method and the cash flow rights of the controlling firm, *Controlling* is a binary variable that takes value 1 if the firm is the business group controlling firm and 0 else, *Ultimately Controlled* is a binary variable that takes value 1 if the firm does not control any other firm, *Relative Position* is the ratio of the number of level of control in the business group and the position of the firm, *ROA* is the firm's return on asset, *Size* is the log of the firm's annual turnover, *Age* is the log of firm age, Leverage is the ratio of firm debt on total liabilities, Growth is the firm's annual turnover growth rate. *Y 1999 to Y 2006* are year dummies where the year 2007 is the reference. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the t test, ** at 5%, and * at 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CF	-0,0065***					0,0039***				
	0,0011					*0,0008*				
Control Ratio		0,0124***					0,0048***			
		0,0019					*0,0014*			
Controlling			-0,0128***					0,0005		
			0,0007					*0,0005*		
Ultimately Controlled				0,0019***					-0,0045***	
				0,0005					*0,0004*	
Relative Position					-0,0053***					0,0042***
					0,0006					*0,0004*
ROA						0,3670***	0,3667***	0,3669***	0,3675***	0,3677***
						0,0013	*0,0013*	*0,0013*	*0,0013*	*0,0013*
Size	-0,0019***	-0,0021***	-0,0021***	-0,0019***	-0,0018***	-0,0044***	-0,0042***	-0,0043***	-0,0047***	-0,0045***
	0,0003	*0,0003*	*0,0003*	*0,0003*	*0,0003*	*0,0002*	*0,0002*	*0,0002*	*0,0002*	*0,0002*
Age	-0,0112***	-0,0113***	-0,0103***	-0,0112***	-0,0109***	-0,0025***	-0,0024***	-0,0024***	-0,0028***	-0,0027***
	0,0004	*0,0004*	*0,0004*	*0,0004*	*0,0004*	*0,0003*	*0,0003*	*0,0003*	*0,0003*	*0,0003*
Leverage	-0,0047***	-0,0047***	-0,0048***	-0,0047***	-0,0047***	-0,0022***	-0,0023***	-0,0022***	-0,0022***	-0,0022***
	0,0001	*0,0001*	*0,0001*	*0,0001*	*0,0001*	*0,0000*	*0,0000*	*0,0000*	*0,0000*	*0,0000*
Growth	0,0002	0,0001	0,0003	0,0002	0,0002	0,0017***	0,0017***	0,0017***	0,0016***	0,0016***
	0,0006	*0,0006*	*0,0006*	*0,0006*	*0,0006*	*0,0004*	*0,0004*	*0,0004*	*0,0004*	*0,0004*
Y 1999	-0,0057***	-0,0058***	-0,0056***	-0,0057***	-0,0056***	-0,0137***	-0,0136***	-0,0136***	-0,0139***	-0,0138***
	0,0012	*0,0012*	*0,0012*	*0,0012*	*0,0012*	*0,0009*	*0,0009*	*0,0009*	*0,0009*	*0,0009*
Y 2000	-0,0032***	-0,0032***	-0,0031***	-0,0032***	-0,0031***	-0,0112***	-0,0112***	-0,0112***	-0,0114***	-0,0114***
	0,0012	*0,0012*	*0,0012*	*0,0012*	*0,0012*	*0,0009*	*0,0009*	*0,0009*	*0,0009*	*0,0009*
Y 2001	-0,0010	-0,0010	-0,0008	-0,0010	-0,0009	-0,0091***	-0,0090***	-0,0090***	-0,0092***	-0,0092***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Y 2002	-0,0024**	-0,0024**	-0,0023**	-0,0024**	-0,0023**	-0,0076***	-0,0075***	-0,0075***	-0,0077***	-0,0077***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Y 2003	-0,0053***	-0,0053***	-0,0052***	-0,0053***	-0,0052***	-0,0074***	-0,0074***	-0,0074***	-0,0076***	-0,0075***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Y 2004	-0,0045***	-0,0045***	-0,0044***	-0,0045***	-0,0044***	-0,0072***	-0,0071***	-0,0071***	-0,0073***	-0,0072***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Y 2005	-0,0059***	-0,0059***	-0,0058***	-0,0059***	-0,0058***	-0,0051***	-0,0051***	-0,0051***	-0,0052***	-0,0052***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Y 2006	-0,0034***	-0,0034***	-0,0034***	-0,0034***	-0,0034***	-0,0024***	-0,0023***	-0,0024***	-0,0024***	-0,0024***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0008*	*0,0008*	*0,0008*	*0,0008*	*0,0008*
Intercept	0,1367***	0,1204***	0,1322***	0,1304***	0,1370***	0,0732***	0,0702***	0,0753***	0,0823***	0,0723***
	0,0029	*0,0034*	*0,0028*	*0,0029*	*0,0028*	*0,0021*	*0,0025*	*0,0021*	*0,0022*	*0,0021*
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F	399,9500	400,3700	413,8200	399,0900	401,8900	3676,3700	3675,6200	3674,8300	3683,7000	3681,2700
R2	0,0959	0,0960	0,0989	0,0958	0,0964	0,5026	0,5025	0,5025	0,5031	0,5029
Number of Observations	105549	105549	105549	105549	105549	105549	105549	105549	105549	105549

4.4.2 Related party transactions in SBGs

In Table 4.6, results clearly show that ownership concentration and closeness to control position reduce a firm's sensitivity to industry shocks (Columns 1 and 5). Controlling firms are, on average, 68% less sensitive to industry shocks than non-controlling firms are (Column 3). Inversely, excess control increases a firm's performance sensitivity to industry shocks (Column 2). Column 4 shows that ultimately controlled firms are significantly more sensitive to industry shocks. Results differ from those obtained by Bertrand et al. (2002), who observe that controlled firms are, on average, less sensitive to industry shocks. Their interpretation is that a firm's performance sensitivity to exogenous shocks is lower when controlling shareholder transfer value out of the firm. Following their interpretation, results indicate that in SBGs, resources flow from controlling firms toward controlled firms. Results regarding the firms' sensitivity to group shocks, displayed in Table 4.6, show that controlling firms are less sensitive to shocks, unlike ultimately controlled firms (Columns 8 and 9). Column 10 confirms these results; we observe that firms closer to control positions have a reduced sensitivity to group shocks. In addition, the separation between control and ownership increases a firm's performance sensitivity to group shocks (Column 2). Finally, Column 1 indicates that the cash flow rights of the controlling firm reduce a firm's performance sensitivity to the group's performance.

Table 4.6: Influence of firms' distance from control on sensitivity to industry-adjusted and group performance

Columns 1 to 5 report estimation of the coefficient when estimating equation 2, using ordinary least square method. Columns 6 to 10 report estimation of the coefficient when estimating equation 3, using ordinary least square method. The explained variable is the annual ROA of the firm. *CF* is the cash flow rights of the controlling firm, *Control Ratio* is the ratio of control computed according to the weakest link method and the cash flow rights of the controlling firm, *Controlling* is a binary variable that takes value 1 if the firm is the business group controlling firm and 0 else, *Ultimately Controlled* is a binary variable that takes value 1 if the firm does not control any other firm, *Relative Position* is the ratio of the number of level of control in the business group and the position of the firm, *ROAf* is the firm's industry-adjusted performance, *ROAg* is the group's performance, *Size* is the log of the firm's annual turnover, *Age* is the log of firm age, *Leverage* is the ratio of firm debt on total liabilities, *Growth* is the firm's annual turnover growth rate. *Y 1999 to Y 2006* are year dummies where the year 2007 is the reference. The * between two variables indicates the coefficient estimation of the interaction between the two variables, in column 1 to 5 the interaction is between firms' distance from control and firms' adjusted performance, and in column 6 to 10 it is the interaction between firms' distance from control and group performance. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the t test, ** at 5%, and * at 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CF*ROAf/g	-0,2917***					-0,3119***				
	0,0152					*0,0192*				
Control Ratio*ROAf/g		0,1751***					0,1748***			
		0,0263					*0,0286*			
Controlling*ROAf/g			-0,3107***					-0,4426***		
			0,0089					*0,0130*		
Ultimately Controlled*ROAf/g				0,1480***					0,1509***	
				0,0073					*0,0093*	
Relative Position*ROAf/g					-0,2148***					-0,24826***
					0,0078					*0,0103*
ROAf	1,1200***	0,7856***	0,9978***	0,8848***	1,2476***	0,7865***	0,7944***	0,7219***	0,7878***	0,7679***
	0,0180	0,0299	0,0132	0,0137	0,0167	*0,0236*	*0,0236*	*0,0235*	*0,0236*	*0,0236*
ROAg						0,6925***	0,2558***	0,5443***	0,3706***	0,7943***
						0,0299	*0,0389*	*0,0254*	*0,0257*	*0,0294*
Size	0,0051***	0,0044***	0,0039***	0,0056***	0,0051***	0,0064***	0,0055***	0,0046***	0,0070***	0,0064***
	0,0005	0,0005	0,0005	0,0005	0,0005	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,0007*
Age	-0,0234***	-0,0245***	-0,0215***	-0,0230***	-0,0224***	-0,0211***	-0,0222***	-0,0187***	-0,0205***	-0,0198***
	0,0007	0,0007	0,0007	0,0007	0,0007	*0,0009*	*0,0009*	*0,0009*	*0,0009*	*0,0009*
Leverage	-0,0064***	-0,0064***	-0,0067***	-0,0064***	-0,0065***	-0,0061***	-0,0061***	-0,0065***	-0,0061***	-0,0062***
	0,0001	0,0001	0,0001	0,0001	0,0001	*0,0001*	*0,0001*	*0,0001*	*0,0001*	*0,0001*
Growth	-0,0045***	-0,0048***	-0,0044***	-0,0044***	-0,0043***	-0,0062***	-0,0065***	-0,0061***	-0,0061***	-0,0058***
	0,0011	0,0011	0,0011	0,0011	0,0011	*0,0014*	*0,0014*	*0,0014*	*0,0014*	*0,0014*
Y 1999	0,0108***	0,0103***	0,0113***	0,0109***	0,0112***	0,0035	0,0033	0,0021	0,0036	0,0034
	0,0022	*0,0022*	*0,0022*	*0,0022*	*0,0022*	*0,0030*	*0,0030*	*0,0030*	*0,0030*	*0,0030*
Y 2000	0,0094***	0,0090***	0,0100***	0,0096***	0,0099***	0,0015	0,0014	0,0008	0,0017	0,0017
	0,0021	*0,0022*	*0,0021*	*0,0021*	*0,0021*	*0,0029*	*0,0029*	*0,0028*	*0,0029*	*0,0029*
Y 2001	0,0106***	0,0103***	0,0112***	0,0107***	0,0110***	0,0048*	0,0047*	0,0046*	0,0048*	0,0049*
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0028*	*0,0028*	*0,0028*	*0,0028*	*0,0028*
Y 2002	0,0064***	0,0061***	0,0068***	0,0066***	0,0067***	0,0019	0,0017	0,0017	0,0019	0,0020
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0027*	*0,0027*	*0,0027*	*0,0027*	*0,0027*
Y 2003	0,0034	0,0031	0,0036*	0,0036*	0,0037*	0,0003	0,0001	0,0005	0,0004	0,0006
	0,0021	*0,0021*	*0,0020*	*0,0021*	*0,0021*	*0,0027*	*0,0027*	*0,0027*	*0,0027*	*0,0027*
Y 2004	0,0055***	0,0053***	0,0057***	0,0057***	0,0059***	0,0028	0,0026	0,0032	0,0028	0,0031
	0,0020	*0,0020*	*0,0020*	*0,0020*	*0,0020*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Y 2005	0,0024	0,0022	0,0024	0,0027	0,0027	0,0017	0,0015	0,0023	0,0017	0,0019
	0,0021	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Y 2006	0,0030	0,0029	0,0030	0,0033	0,0033	0,0024	0,0022	0,0029	0,0024	0,0026
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Intercept	0,0588***	0,0677***	0,0675***	0,0517***	0,0559***	0,0115*	0,0218***	0,0246***	0,0027	0,0071
	0,00514	0,00513	0,00510	0,00518	0,00513	*0,0066*	*0,0066*	*0,0065*	*0,0067*	*0,0066*
F	761,81	736,33	828,82	765,53	792,53	535,75	518,84	602,40	535,69	559,51
R2	0,0918	0,0890	0,0991	0,0922	0,0951	0,1066	0,1036	0,1183	0,1066	0,1108
Number of Observations	105549	105549	105549	105549	105549	67360	67360	67360	67360	67360

Overall, Table 4.6 indicates that firms closer to control positions have lower performance sensitivity to both industry and group shocks. The interpretation of this result is twofold. On the one hand, this indicates that controlling firms transfer value toward controlled firms, which leads to the rejection of the expropriation of minority shareholders in SBGs. On the other hand, controlling firms' performance reduced sensitivity to shocks might point out that related party transactions are used to limit the wealth exposure of dominant shareholders to exogenous shocks, supporting the immunization hypothesis. In order to explore this issue in greater depth, we estimate the firm's distance from control effect on performance, controlling for industry and group shocks.

Column 1 of Table 4.7 shows that the relationship between the controlling firms' ownership and the firms' economic performance depends on the type of shocks. When a firm's industry-adjusted performance ($ROAf_{i,t,k}$) is lower than 6.31%[72], ownership concentration has a positive influence on the firm's economic performance. However, when a firm has a good level of industry-adjusted performance (higher than 6.31%), we observe a negative relationship. We find similar results regarding firm performance sensitivity to group shocks, with a threshold of 7.63% (see Column 6). Likewise, controlling firms outperform other group firms when their industry-adjusted performance and group performance are below 5% and 3.5%, respectively (Columns 3 and 8). The separation between control and cash flow rights has no significant influence on the firm's performance global sensitivity to shocks (Columns 2 and 7). Lastly, the firm's distance from control is detrimental to its performance

[72] In order to compute this threshold, the following formula is used:
$\frac{\Delta ROA}{\Delta ControlStructure} = \beta_1 + \beta_2 * ROA(f_{i,t,k}) = 0 \Leftrightarrow ROA(f_{i,t,k}) = -\frac{\beta_1}{\beta_2}$, where β_1 is the coefficient on the control structure variable, and β_2 is the coefficient on the interaction term between control structure and industry-adjusted or group performance

when shocks are unfavorable, whereas favorable shocks have a positive influence on their performance (Columns 4, 5, 9, and 10).

Table 4.7: Global influence of firms' distance from control on sensitivity to industry-adjusted and group performance

Columns 1 to 5 report estimation of the coefficient when estimating equation 4, using ordinary least square method. Columns 6 to 10 report estimation of the coefficient when estimating equation 5, using ordinary least square method. The explained variable is the annual ROA of the firm. *CF* is the cash flow rights of the controlling firm, *Control Ratio* is the ratio of control computed according to the weakest link method and the cash flow rights of the controlling firm, *Controlling* is a binary variable that takes value 1 if the firm is the business group controlling firm and 0 else, *Ultimately Controlled* is a binary variable that takes value 1 if the firm does not control any other firm, *Relative Position* is the ratio of the number of level of control in the business group and the position of the firm, *ROAf* is the firm's industry-adjusted performance, *ROAg* is the firm's group performance, *Size* is the log of the firm's annual turnover, *Age* is the log of firm age, *Leverage* is the ratio of firm debt on total liabilities, *Growth* is the firm's annual turnover growth rate. *Y 1999 to Y 2006* are year dummies where the year 2007 is the reference. CS*ROAf is the estimation of the interaction between the industry-adjusted performance and the variable of distance from control, which is also estimated as an independent variable. CS*ROAg is the estimation of the interaction between the group performance and the variable of distance from control, which is also estimated as an independent variable. The standard errors of estimates are reported in italics under the value of the estimated coefficients. *** indicates that coefficients estimates are significant at the 1% level according to the t test, ** at 5%, and * at 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CF	0,03414***					0,0543***				
	0,0073					*0,010*				
Control Ratio		0,0177					0,019			
		0,0126					*0,015*			
Controlling			0,0148***					0,0361***		
			0,0044					*0,007*		
Ultimately Controlled				0,0042					0,004	
				0,0034					*0,005*	
Relative Position					-0,0025					0,0092*
					0,0038					*0,005*
ROAf	1,4015***	0,92066***	1,0177***	0,9016***	1,2229***	0,7841***	0,7948***	0,7130***	0,7874***	0,7667***
	0,0465	*0,1008*	*0,0144*	*0,0194*	*0,0406*	*0,024*	*0,024*	*0,024*	*0,024*	*0,024*
CS* ROAf	-0,5410***	0,0430	-0,4208***	0,1175***	-0,1965***					
	0,0552	*0,0978*	*0,0338*	*0,0259*	*0,0287*					
ROAg						1,0116***	0,4009***	0,5882***	0,3865***	0,8846***
						0,064	*0,125*	*0,027*	*0,032*	*0,059*
CS*ROAg						-0,7115***	0,033	-0,7102***	0,1229***	-0,3161***
						0,073	*0,119*	*0,050*	*0,035*	*0,040*
Size	0,0051***	0,0044***	0,0040***	0,0056***	0,0051***	0,0063***	0,0055***	0,0047***	0,0070***	0,0064***
	0,0005	*0,0005*	*0,0005*	*0,0005*	*0,0005*	*0,001*	*0,001*	*0,001*	*0,001*	*0,001*
Age	-0,0236***	-0,0245***	-0,0216***	-0,0229***	-0,0224***	-0,0212***	-0,0222***	-0,0189***	-0,0205***	-0,0199***
	0,0007	*0,0007*	*0,0007*	*0,0007*	*0,0007*	*0,001*	*0,001*	*0,001*	*0,001*	*0,001*
Leverage	-0,0064***	-0,0064***	-0,0067***	-0,0064***	-0,0065***	-0,0061***	-0,0061***	-0,0065***	-0,0061***	-0,0062***
	0,0001	*0,0001*	*0,0001*	*0,0001*	*0,0001*	*0,000*	*0,000*	*0,000*	*0,000*	*0,000*
Growth	-0,0045***	-0,0048***	-0,0044***	-0,0044***	-0,0042***	-0,0062***	-0,0065***	-0,0061***	-0,0061***	-0,0058***
	0,0011	*0,0011*	*0,0011*	*0,0011*	*0,0011*	*0,0014*	*0,0014*	*0,0196*	*0,0014*	*0,0014*
Y 1999	0,0108***	0,0103***	0,0113***	0,0110***	0,0112***	0,0035	0,0033	0,0022	0,0036	0,0034
	0,0022	*0,0022*	*0,0022*	*0,0022*	*0,0022*	*0,0030*	*0,0030*	*0,0030*	*0,0030*	*0,0030*
Y 2000	0,0094***	0,0090***	0,0101***	0,0096***	0,0099***	0,0016	0,0014	0,0010	0,0017	0,0017
	0,0021	*0,0022*	*0,0021*	*0,0021*	*0,0021*	*0,0029*	*0,0029*	*0,0028*	*0,0029*	*0,0029*
Y 2001	0,0106***	0,0103***	0,0112***	0,0108***	0,0110***	0,0030*	0,0047	0,0047*	0,0048*	0,0049*
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0019*	*0,0028*	*0,0028*	*0,0028*	*0,0028*
Y 2002	0,0064***	0,0061***	0,0068***	0,0066***	0,0068***	0,0048	0,0017	0,0018	0,0019	0,0020
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0027*	*0,0027*	*0,0027*	*0,0027*	*0,0027*
Y 2003	0,0034	0,0031	0,0036*	0,0036*	0,0037*	0,0003	0,0001	0,0005	0,0004	0,0006
	0,0021	*0,0021*	*0,0020*	*0,0021*	*0,0021*	*0,0027*	*0,0027*	*0,0027*	*0,0027*	*0,0027*
Y 2004	0,0055***	0,0053***	0,0057***	0,0057***	0,0059***	0,0028	0,0026	0,0032	0,0028	0,0031
	0,0020	*0,0020*	*0,0020*	*0,0020*	*0,0020*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Y 2005	0,0024	0,0022	0,0024	0,0026	0,0027	0,0017	0,0015	0,0022	0,0017	0,0019
	0,0021	*0,0021*	*0,0020*	*0,0021*	*0,0020*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Y 2006	0,0030	0,0029	0,0030	0,0033	0,0033	0,0024	0,0022	0,0028	0,0024	0,0026
	0,0021	*0,0021*	*0,0021*	*0,0021*	*0,0021*	*0,0026*	*0,0026*	*0,0026*	*0,0026*	*0,0026*
Intercept	0,0314***	0,0496***	0,0644***	0,0492***	0,0592***	-0,0310***	0,002	0,0066***	0,000	-0,0048***
	0,0078	*0,0139*	*0,0052*	*0,0056*	*0,0072*	*0,010*	*0,017*	*0,001*	*0,007*	*0,009*
F	712,64	687,38	774,41	714,59	739,72	504,52	486,51	566,90	502,25	524,75
R2	0,0920	0,0890	0,0992	0,0922	0,0951	0,107	0,104	0,119	0,107	0,111
Number of Observations	105549	105549	105549	105549	105549	67360	67360	67360	67360	67360

Mostly, the results in Table 4.7 indicate that the shock the firm undergoes conditions the influence a firm's distance from control has on its performance. When shocks are favorable, controlling firms transfer resources toward controlled firms. When they are unfavorable however, controlling firms tunnel resources out of controlled firms. This artificially improves the performance of the controlling firms. These results are consistent with the immunization hypothesis and indicate that in SBGs, minority shareholders expropriation rather consists to increased risk than value expropriation.

4.5 Conclusion

This chapter investigates the rationale that leads small business owners to structure their control in a SBG, rather than to develop their original business in a standalone firm. This chapter contributes to both the SME and corporate governance literature. It presents a study of a large panel of French SBGs, contributing to the scarce empirical literature on this phenomenon. Furthermore, a SBG is a governance structure that introduces a distance from control; firm position in the control chain influences owner incentives, raising the concern for minority shareholders expropriation. By investigating why entrepreneurs choose this particular growth strategy, this chapter explores the interaction between corporate governance and small business growth. First, it provides evidence of the fact that in SBGs, owners have an incentive to promote the development of controlled firms. Results show that distance from control has a positive influence on firm performance: controlled firms outperform controlling firms. Second, results corroborate that value transfers within group firms do not increase the controlling shareholder's private benefits of control, but rather seek to limit its control risk. Indeed, firms higher in the control chain tend to tunnel resources out when the business

environment is unfavorable, expropriating value from minority shareholders. Thus, in SBGs, tunneling arises only when controlling firms undergo negative shocks. In this case, they use internal transfers to maintain artificially their level of performance. Nevertheless, when the business environment is good, controlling firms transfer resources toward controlled firms in order to support their development. We obtain results on SBGs that differ from what corporate governance literature reports for large business groups. We observe that the separation between control and ownership has a positive influence on firm performance in SBGs. Moreover, results show an inversion of the issues of propping and tunneling in SBGs as compared to the dynamic observed in large business groups.

Overall, results contribute to the literature on SMEs' specific financial behavior. They point out that the rationale to structure control via a SBG is different from what the literature observes for large business groups. In contrast to publicly listed firms, where controlling shareholders structure their control in a business group to maximize the extraction of private benefits, grouping SMEs aims to smooth small businesses' obstacles to growth. First, SBGs release financial constraints by opening business capital to minority shareholders. However, the durability of this financial resource depends on the commitment to not extracting private benefits at the expense of minority shareholders. Second, grouping small businesses also solves risk issues. Structuring control in a business group reduces the owner wealth exposure to the business risk. The business group structure introduces a fractioning of liabilities and allows the owner to transfer risk toward controlled firms. This chapter underscores that corporate governance issues differ in small businesses. Specifically, results support the claim of Cole (1998) regarding the role of close connections for SMEs finance. Moreover, results corroborate that the entrepreneur's wealth under diversification shapes small business financial behavior.

Future SME research must take into account that the formation of SBGs is an increasing means of growing the business. In particular, future research should address the question of whether the constitution of a SBG is an alternative growth strategy or a stage toward initial public offering. Furthermore, results presented in the chapter only focus on the French case; future research using data from other countries is necessary to explore the influence that institutional factors have on the motivation to structure control in a SBG. Specially, cross-country evidence would help show how bankruptcy law and the application of limited liability affect the motivation to create SBGs. Finally, results also underlined that a "small business corporate governance model" accounting for SMEs' specificities is still lacking.

Appendices

Appendix 4.A: Description of variables

Table 4.8: Distance from control variables

		Variable	Example	Definition
Control structure variables	Cash flow related variables	***Ownership (CF)***	A: . ;B: 0,7 ;C: 0,9; D: 0,9*0,6 = 0,54 ; E: . F:.	Product of direct cash flow rights along the chain of control.
		Control ratio	A:. ; B: 0,7/0,7 = 1; C:0,9/0,9=1; D: 0,9*0,6/0,6 =0,9 ; E:.; F:.	Ratio of the controlling firm's control stakes and its ownership, where control is computed according to the weakest link method.
	Position variables	***Controlling***	A: 1; B: 0 ; C:0; D:0;E:.; F.	Equal1 if the firm is the controlling firm, and 0 otherwise.
		Ultimately controlled	A:0; B:1; C:0; D:1; E:.; F:.	Takes value 1 if the firm is the ultimate controlled firm,and 0 otherwise.
		Relative position	A: 3/3 = 1; B: 2/3 C: 2/3; D=1/3; E: ., F:.;	Indicates the position of the firm relative to the level number in the control pyramid: it is the ratio of the number of levels in the pyramid to the position of the firm.

The example column illustrates how we compute those variables for the business group represented in Figure 3.1.

Table 4.9: Shock variables

		Variable	Formula	Definition
Shock variables	Industry	***ROAf*** (indusrty adujsted performance)	$ROAf_{i,t,k} = \frac{\sum_{j=1}^{J}[TotalAsset_{j,t,k} \times ROA_{j,t,k}]}{\sum_{j=1}^{J} TotalAsset_{j,t,k}}$	Average performance of firms belonging to the same industry, using a industry 60 classification, weighted by firms' size (excluding firm i)
	Group	***RoA g (*** group performance)	$ROAg_{i,t,g} = \frac{\sum_{j=1}^{J}[ROAf_{j,t,g}]}{Nbfirms_{g} - 1}$	Average industry adjusted performance of group firms (g) excluding firm i

Table 4.10: Explained variables

		Variable	Formula	Definition
Explained variables	Economic	***ROA***	$ROA_{i,t} = \frac{EBITDA_{i,t}}{TotalAsset_{i,t}}$	Return on asset computed as the ratio of earnings before tax, interest and depreciation (EBITDA) to total firm assets.
	Financial	***ROE***	$ROE_{i,t} = \frac{NetIncome_{i,t}}{Equity_{i,t}}$	Return on equity computed as the ratio net firm income to total equity.

Table 4.11: Control variables

	Variable	Formula	Definition
Technological	***Size***		Log of firm sales.
	Industry		Dummy variable indicating whether a firm belongs to a particular industry in the 15 industry classification sheme (similar to NACE classification).
	Age		Log of the number of years since the firm's creation.
Financial	***Leverage***	$Leverage_{i,t} = \frac{FinancialDebt_{i,t}}{Equity_{i,t}}$	Ratio of firm financial debt to equity.
	Sales Growth	$SalesGrowth_{i,t} = \frac{Tunrover_{i,t+1}}{Turnover_{i,t}} - 1$	Annual growth rates of sales.
Year Dummy	***Y1999- Y2007***		dummy variable equal 1 when the accounting information is from the year in question, and 0 otherwise.

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Conclusion générale

Les quatre chapitres de cette thèse éclairent le lien entre contrôle, accès au financement et croissance des petites et moyennes entreprises (PME). Afin de concilier les objectifs contradictoires de maintien de l'indépendance et de l'accès aux ressources de financement indispensables à leur développement, les PME adoptent des stratégies financières et organisationnelles spécifiques. Les deux premiers chapitres montrent que, pour préserver leurs opportunités de croissance illiquides, les PME renforcent leur trésorerie et optent ainsi pour un comportement de croissance patient. Les deux derniers chapitres s'intéressent à un comportement de croissance particulier : la création d'un groupe de PME. Cette stratégie organisationnelle favorise le dynamisme des PME (Chapitre 3) tout en limitant l'exposition du patrimoine de l'entrepreneur au risque de son activité (Chapitre 4).

Ce travail de recherche apporte plusieurs contributions**.** Le Chapitre 2 contribue à la littérature théorique sur le rôle de la détention de réserves de liquidités pour limiter les problèmes de sous-investissement. Ce chapitre développe un modèle spécifique aux PME, qui fonde les contraintes de financement sur l'opacité informationnelle des PME. Les trois autres chapitres présentent un ensemble d'études empiriques sur des données originales, particulièrement sur les groupes de PME. Ils contribuent à une meilleure connaissance de cette population d'entreprises peu étudiée par la littérature financière. Les résultats empiriques mettent en évidence les différences de comportement financier entre PME et grandes entreprises. Ils soulignent que la taille constitue un facteur clef du comportement financier des entreprises et influence les problèmes de gouvernance.

De ce travail, on peut également inférer des contributions de politiques économiques. Les résultats soulignent qu'il faut prendre en compte la temporalité (immédiate ou future) des contraintes de financement subies par les PME, dans la mise en place de politiques de soutien au dynamisme des PME. De plus, les résultats indiquent que des investisseurs aux portefeuilles diversifiés est un facteur favorisant le dynamisme de l'activité des PME (Chapitres 1 et 2). D'un point de vue managérial, le Chapitre 2 montre que la gestion de la trésorerie est centrale dans le processus de croissance des petites entreprises. Selon les résultats obtenus au Chapitre 3, la constitution d'un groupe de PME est une stratégie organisationnelle qui favorise le développement des petites entreprises. Enfin, on relève des distorsions en termes de risque au sein des groupes de PME (Chapitre 4), résultat qui peut trouver une application dans le développement de la notation des PME.

Au terme de cette thèse, plusieurs perspectives de recherche sont envisageables. L'utilisation d'un échantillon international permettrait de confirmer la portée des résultats et d'isoler les effets institutionnels. L'accès à des données dynamiques sur les structures de propriété éclairerait le lien de causalité entre structure de contrôle et croissance des PME.

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TABLE DES FIGURES ET TABLEAUX

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