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THÈSE

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L'impact des opérations de fusions et acquisitions sur la qualité de l'information comptable

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1. Introduction générale et présentation de la thèse

Les opérations de fusions et d'acquisitions sont un des principaux vecteurs d'évolution et de restructuration de l'appareil productif. Ces opérations, si elles constituent pour les entreprises qui y sont impliquées, des enjeux en terme de performance, sont aussi une source significative de risques et d'incertitudes. Ces risques et incertitudes portent notamment sur la capacité à mettre en œuvre des synergies, sur l'intégration des équipes et des cultures d'entreprises, ou encore sur la réaction des concurrents. Au delà de ces risques et incertitudes « économiques », d'autres éléments concourent, peut-être de façon paradoxale, à accroitre la tension entourant les opérations de fusions et acquisition. On pense en particulier aux risques et incertitudes pesant sur l'environnement juridique de l'entreprise et notamment sur la pérennité des contrats ou encore aux risques et incertitudes associés à la fiabilité et de façon plus générale à la qualité de l'information comptable. Ce point apparaît particulièrement important car tant le cadre juridique que l'environnement informationnel et notamment « comptable » de l'entreprise constituent des éléments clés de la structuration et de la sécurisation des transactions. Le présent travail s'intéresse à cette dernière dimension, la qualité de l'information comptable autour des opérations de fusions et acquisitions.

Que la qualité de l'information comptable soit un enjeu lors des opérations de fusions et acquisitions, peut, de prime abord, apparaître surprenant. Après-tout, l'information comptable n'est-elle pas le résultat de l'application d'un ensemble de règles, de principes, de normes, pensés afin de garantir une haute qualité « informationnelle » à ses utilisateurs, y compris lors d'opérations comme les fusions et acquisitions ? Au delà, la production comptable des entreprises n'est-elle pas servie par tout un ensemble d'acteurs reconnus et compétents, qu'il s'agisse des services comptables des entreprises, des conseils les entourant ou encore des cabinets d'experts-comptables et d'auditeurs ? Bien évidemment, pour autant l'information comptable demeure un enjeu capital pour les entreprises impliquées dans les opérations de rapprochement, et il serait en outre

illusoire de penser que la comptabilité se résume à un ensemble purement mécanique de règles à appliquer.

La comptabilité est un enjeu pour les entreprises impliquées dans les opérations de fusions et acquisitions car cette information sert fondamentalement d'ancrage à la valorisation des entités. Cette valorisation se retrouvera dans la mise en avant du plan d'affaires associé à l'opération, dans la reconnaissance des actifs et des passifs du groupe constitué, dans l'appréciation de la valeur de la cible, par exemple au travers de multiples de bénéfices ou d'EBITDA, et de la valeur de l'acquéreur (Marquardt and Zur, 2014). L'information comptable sera également un enjeu lorsqu'il s'agira de répartir le prix d'acquisition entre les actifs identifiés et le goodwill, ce au risque de faire apparaître un hiatus entre le prix payé et le montant des synergies. Cette information comptable sera également un enjeu lorsqu'il s'agira de rendre compte ex-post de la pertinence de l'opération, de sa performance, des coûts associés à sa mise en œuvre ou encore des coûts associés aux restructurations impliquées par l'opération. La qualité de l'information comptable sera enfin un élément dont on a pu montrer qu'il n'était pas sans conséquences sur le choix des méthodes d'acquisition entre enchère et négociation notamment (French and McCormick, 1984).

L'importance de ces enjeux comptables pourrait laisser croire qu'elle crée un terrain propice à la fraude en matière comptable. C'est peut-être le cas, même si ce n'est pas nécessairement ce que suggère l'observation des litiges lors des fusions et acquisitions, mais d'une part ce point ne constitue pas le sujet du présent travail, et d'autre part la fraude n'est pas la seule alternative à une vision « mécanique » de la comptabilité. De nombreux éléments font l'objet d'estimations lors du reporting comptable, pensons simplement aux éléments de provisions, qui concernent autant la valeur d'un stock, la dépréciation d'une Unité Génératrice de Trésorerie, ou encore des engagements post-emplois. Ces éléments d'estimation créent évidemment une zone d'indétermination dans l'appréciation du patrimoine de l'entreprise, de ses obligations et de sa performance. Les choix comptables, par exemple les choix en matière de classification et d'agrégation des items, constituent un autre élément de flexibilité offerte aux préparateurs de comptes. Au

delà, l'objectif de qualité du reporting comptable pourra se manifester par une « gestion » de l'information comptable de sorte que celle-ci possède les qualités attendues par ses utilisateurs, on pense notamment à la persistance des mesures de performance (Dechow, Ge et al., 2010).

Il ressort de ces quelques éléments que l'information comptable est effectivement un enjeu pour les entreprises impliquées dans des opérations de fusions et acquisitions et que ces entreprises disposent d'une réelle latitude dans la gestion de l'information comptable qu'elles diffusent. La Théorie Positive de la Comptabilité nous a par ailleurs invité à voir dans les choix comptables des entreprises l'expression d'intérêts particuliers, et l'analyse empirique de ces choix comptable, plus largement de la communication financière de l'entreprise, intègre désormais cette dimension. Dans le cadre du présent travail, nous nous interrogerons sur les pratiques de gestion de résultats des entreprises impliquées en tant qu'acquéreurs dans des opérations de fusions et acquisitions.

Le résultat est un élément clé dans la communication financière de l'entreprise. Il est le principal indicateur suivi par la communauté financière afin d'apprécier la performance de l'entreprise, et il est en retour la mesure sur laquelle se cristallisent les attentes concernant l'entreprise, telles qu'elles se manifestent notamment au travers des prévisions des analystes financiers. Le résultat est par ailleurs, conjointement avec l'actif net, la principale mesure d'ancrage « comptable » de la valeur boursière des entreprises. C'est enfin dans cette mesure de résultat que s'agrègent in fine la somme des opérations d'exploitation de l'entreprise. Il n'y a donc rien d'étonnant à ce que l'essentiel de la gestion de la communication financière de l'entreprise soit médiatisé par la gestion de son résultat et des propriétés de dernier, ce que recouvre la notion de qualité du résultat (« earnings quality » selon le terme mis en avant dans la synthèse proposée par Dechow, Ge et al., 2010) et qui dans une large partie pourra être assimilé à la notion de qualité de l'information comptable même s'il ne s'y réduit pas.

La gestion de résultats (ci-après EM), et sa détection, pourra emprunter différentes voies. Trois principales ont été mises en avant au sein de la littérature académique. La première vise les ajustements comptables qui permettent de passer du flux financier associé à un exercice comptable à une mesure de résultat, soit de façon simple d'une Capacité d'Auto-Financement (CAF) au Résultat de l'Exercice. L'idée est ici que l'activité de l'entreprise se traduit d'abord par une somme d'encaissements et de décaissements, et que c'est le travail du préparateur de comptes que d'ensuite transformer cette vision « flux » en une mesure de résultat comptable qui fera l'objet d'une communication financière et qui véhiculera un certain nombre de qualités attendues par la communauté financière. La gestion de résultat s'immisce dans la latitude laissée au préparateur de comptes dans la définition du résultat de l'entité. Cette approche est connue comme étant la gestion par les ajustements comptables ou gestion par les « accruals » (ci-après AM).

La seconde approche prend le point de vue opposé à la première approche : il ne s'agit plus de gérer le reporting comptable au travers des produits et charges non encaissées et décaissées, mais de travailler le résultat « en amont », c'est à dire au niveau du flux global caractérisant l'exercice comptable de l'entreprise. Il s'agit par exemple d'ajuster ce flux à la hausse en ajournant des dépenses prévues, par exemples des dépenses de communication et de publicité, ce en les renvoyant (hypothétiquement) à un exercice futur. Cette vision de la gestion de résultat s'appuyant sur les flux effectivement constatés, elle est qualifiée dans la littérature de gestion « réelle » de résultats (ci-après REM). Enfin, une troisième approche est identifiée par choix de classification des items : l'idée est ici que certains items seront temporairement reclassés d'un compte à un autre, affectant de fait les éléments pris en compte dans le calcul des résultats, notamment des résultats intermédiaires. Cette approche est connue dans la littérature sous le terme d'approche par le choix de classification des items ou « classification shifting approach » (McVay, 2006).

La littérature portant sur les opérations de fusions et acquisition s'est intéressée à la gestion de résultat de la part des acquéreurs. En particulier Erickson and Wang (1996) et Louis (2004) ont montré que les acquéreurs réglant leurs acquisitions uniquement en

titres avaient tendance à gérer à la hausse leur résultat, ceci en recourant à des ajustements comptables (gestion par « accruals »). La motivation d'une telle gestion du résultat réside dans la croyance d'une communication financière qui contribuerait à biaiser à la hausse la perception du marché quant à la valeur du titre de l'acquéreur et de ce fait à réduire le coût d'acquisition. Toutefois de nombreuses questions demeurent : Dans quelles mesures ces mêmes acquéreurs pourraient également recourir à une gestion réelle des résultats ? Quel arbitrage, s'il y a, entre la gestion par accruals (AM) et la gestion « réelle » (REM) peut-on attendre de la part des acquéreurs, notamment suite à la promulgation de la loi Sarbanes-Oxley, qui accroit la pression portée sur la qualité des nombres comptables et sur la responsabilité des préparateurs/vérificateurs de comptes ? Le cas échéant, les stratégies à base d'ajustements comptables et les stratégies réelles sont-elles à penser dans une logique de substitution, ou plutôt dans une logique de complémentarité ? Quel est le comportement des acquéreurs en la matière ? Les implications post-acquisitions d'une gestion de résultat pré-acquisition sont-elles les mêmes selon la méthode de gestion de résultat retenue ? Le marché est-il « dupe » de ces stratégies ? Comment se comportent les acquéreurs réglant leurs opérations partiellement en titres et partiellement en liquidités, opérations ayant connues un fort développement ? Les stratégies de « classification shifting » sont-elles également mises en œuvre par les acquéreurs ?

Cette thèse présente trois analyses liées à ces questions.

La première analyse reprend la perspective proposée par Erickson and Wang (1996) et Louis (2004) selon laquelle les entreprises réglant leur acquisition par titres ont une incitation à gérer à la hausse leur résultat. Toutefois, à côté d'une gestion par accruals, nous envisageons la possibilité que les acquéreurs mobilisent également une gestion de type « réelle ». La question qui se pose dès lors est celle du choix de l'acquéreur entre ces deux méthodes de gestion du résultat, AM vs REM. Dans cette perspective le passage de la loi Sarbanes-Oxley est un élément venant modifier le coût relatif associé à chacune de ces modalités de gestion du résultat et donc potentiellement leur utilisation. L'impact de

la gestion du résultat (pré-acquisition) sur la performance opérationnelle et sur la performance boursière des acquéreurs est également étudié.

Nous avons constitué un échantillon de 2,956 opérations de F&A réalisées sur le marché américain et relatif à la période 1986-2013. Nous observons les comportements de gestion des résultats au travers de deux modalités de gestion du résultat - par accruals et par action sur les activités réelles - pendant une période de sept ans autour de l'acquisition. Le modèle de Jones Modifié et le modèle de réduction anormale en R&D sont appliqués pour mesurer respectivement les comportements d'AM et REM (voir le point 2 pour une présentation de ces méthodes).

Afin d'observer le choix entre AM et REM, nous appliquons un modèle Probit à deux étapes avec la correction de Heckman. Dans la première étape, nous estimons la probabilité de l'entreprise à s'engager dans une gestion des résultats, quelle que soit la méthode de gestion de résultat utilisée. Dans la deuxième étape, nous observons le choix entre ces deux méthodes, soit comptable, soit non-comptable, conditionnellement à la probabilité d'utiliser la gestion des résultats dans la première étape.

Nos résultats indiquent que la gestion des résultats via la façon comptable (non-comptable) est plus (moins) susceptible d'être utilisé par les entreprises qui paient en action. Par ailleurs, après le passage de SOX, la modalité comptable semble moins utilisée par les acquéreurs qui paient uniquement en action. Cependant, ce type de comportements de gestion des résultats est plus vraisemblablement utilisé par les acquéreurs qui paient une grande partie par action (50% ~ 99%). L'impact de la gestion du résultat sur la performance de l'entité apparaît contrasté. D'un côté, les résultats montrent que ces comportements de gestion des résultats via la modalité comptable affectent la performance d'exploitation après acquisition. D'un autre côté, notre étude indique que les comportements de gestion des résultats n'affectent pas la performance boursière des entreprises dans la période post-acquisition.

La seconde analyse adopte un regard plus agnostique sur le comportement de gestion du résultat des acquéreurs. Nous ne posons pas à priori que seules les entreprises réglant leurs acquisitions par titres gèreraient leur résultat. En particulier, nous tenons compte

du développement d'opérations impliquant un paiement mixte en titres et en liquidités. D'autres raisons que celle liée à la volonté de régler avec un titre surévalué peuvent en effet présider à la gestion du résultat de l'acquéreur, autant ex-ante (apparaître auprès de ses propres actionnaires comme une entreprise forte et légitime dans sa volonté d'acquisition) que ex-post (gérer l'impact des coûts d'acquisition sur le résultat). Notre analyse conduit à identifier des groupes de comportements types en matière de gestion de résultats et de les mettre en perspective des modalités de paiement des acquisitions. L'étude s'inspire notamment du travail de Kothari, Mizik et al. (2016) portant sur la gestion du résultat des entreprises réalisant une augmentation de capital. Il ressort de l'étude que les entreprises réglant en liquidité ou selon un mix titres et liquidités ont également un souci de gestion de leur résultat, tant avant qu'après l'opération d'acquisition. Dans cette perspective, la gestion réelle et la gestion via accruals semblent être plus complémentaires que substituables. L'évolution temporelle de la gestion de résultat autour de l'opération d'acquisition est par ailleurs analysée de même que l'impact de cette gestion du résultat sur la performance post acquisition de l'acquéreur. Enfin, de nombreuses entreprises multipliant les acquisitions dans le temps, leur comportement a été décrit.

La troisième étude s'intéresse à l'utilisation du choix de classification comme méthode de gestion du résultat par les acquéreurs. Les résultats suggèrent que cette approche est retenue par tous les acquéreurs, qu'ils règlent en titres, en liquidités ou via un mix titres et liquidités. Les résultats indiquent également que la gestion du résultat par choix de classification caractérise autant la période pré-acquisition que la période post-acquisition. Pris globalement, ces résultats plaident pour une reconnaissance généralisée de cette approche de la gestion du résultat par choix de classification à côté des méthodes désormais courantes de gestion par accruals et de gestion réelle.

La suite de ce chapitre présente quelques éléments généraux relatifs à la gestion de résultats et aux opérations de fusions et acquisitions que nous retrouverons de façon synthétique dans chacun des chapitres suivants.

2. Eléments de synthèse relatifs à la gestion du résultat et aux opérations de fusions et acquisitions

2.1 Quelle motivation pour la gestion du résultat ?

La littérature indique que les comportements de gestion des résultats peuvent avoir différentes motivations.

La première est liée aux liens entre l'entreprise et les marchés de capitaux. Pour les investisseurs et les analystes financiers, la qualité de l'information comptable joue un facteur essentiel afin de les aider à évaluer la valeur du titre. Cet intérêt pourra motiver le dirigeant de l'entreprise à gérer sa communication financière et son résultat.

Au travers d'une enquête par questionnaire et par entretiens auprès de plus de 400 dirigeants, Graham, Harvey et al., (2005) montre une motivation claire des entreprises utilisant la gestion des résultats pour lisser les résultats afin de croiser les prévisions des analystes financiers. Ces résultats sont confirmés par les travaux de Doyle, Jennings et al., (2013) et de Burgstahler and Eames, (2006). Parallèlement, Burgstahler and Dichev, (1997) indique que l'entreprise gère les résultats son résultat pour éviter les pertes ainsi que la baisse du résultat.

De Jong, Mertens et al. (2014) présente les résultat d'une enquête auprès de 638 analystes financiers et des entreprises suivis par ceux-ci. Les résultats indiquent que les directeurs financiers croient que la gestion des bénéfices améliore la perception de leur entreprise par les analystes et les investisseurs et permet d'améliorer la valorisation de leurs entreprises.

La motivation contractuelle est une autre source importante de la gestion des résultats. L'information comptable joue un rôle important dans la conclusion des contrats entre l'entreprise et ses parties prenantes. C'est par exemple le cas des contrats de prêts. L'entreprise sera incitée à gérer son information comptable en réponse au resserrement des contraintes associées aux clauses restrictives ou covenants de son contrat de prêt (Sweeney, 1994).

Une autre motivation contractuelle est liée aux contrats de rémunération des cadres dirigeants. Healy, (1985) and Holthausen, Larcker et al., (1995) indiquent notamment que la gestion des résultats est plus susceptible d'être utilisée pour atteindre un seuil de performance lorsque si les entreprises proposent une prime aux dirigeants liée à la performance de l'entreprise. Bergstresser and Philippon, (2006) montre que l'entreprise qui gère les résultats via la façon comptable est celle où la rémunération des dirigeants est liée à la valeur de leurs options sur actions. Au delà, ils établissent que ces dirigeants exercent un nombre d'option exceptionnellement élevé lors des périodes de forte gestion des résultats.

La gestion des résultats peut aussi être utilisée pour des raisons règlementaires. La littérature indique que le dirigeant est incité à s'engager dans de la gestion des résultats lorsque l'entreprise fait face à des pressions antitrusts. (Watts and Zimmerman, (1978)). Jones, (1991) examine et constate que l'entreprise tente de baisser ses bénéfices par mise en œuvre d'une gestion des résultats alors même que la Commission du Commerce International des États-Unis se penche sur la capacité de baisser les barrières à l'entrée et sn impact sur les profits des producteurs américains. Cahan, (1992) illustre un comportement de même nature sur un échantillon différent portant sur une enquête antitrust. Key, (1997) indique que les entreprises du secteur de l'industrie de la télévision par câble gèrent leurs résultats de façon comptable (via les accruals) lors de l'audience du Congrès sur la détermination de la déréglementation de l'industrie. Prose dans son

ensemble, la littérature suggère ainsi que l'entreprise a tendance à gérer les résultats au moment de l'examen du régulateur sur ses conditions d'exploitation.

La réglementation du secteur est aussi une source de motivation importante à s'engager dans la gestion des résultats. Moyer, (1990), Scholes, Wilson et al., (1990), Beatty, Chamberlain et al., (1995) ou encore Collins, Shackelford et al., (1995) indiquent que les banques ont tendance à accroitre leur provisions pour créances douteuses et de façon plus générale à réduire leurs risques et/ou leurs résultats en lien avec la proximité de l'exigence minimale de capitaux propres. La littérature (Petroni, (1992); Adiel, (1996) notamment) fournit également des éléments suggérant la présence d'une gestion des résultats pour les entreprises dans le secteur de l'assurance.

La littérature s'est également intéressée aux motivations spécifiques des entreprises impliquées dans des opérations de fusions et acquisitions. Les acquisitions majeures amènent généralement des dépenses importantes et des frais importants de restructurations, ce qui constitue une motivation importante pour l'entreprise acquéreuse à gérer les résultats. Ainsi, en plus des motivations générales indiquées précédemment, un acquéreur aura probablement des motivations spécifiques à gérer son résultat.

Pour les acquisitions qui sont payées par actions, augmenter le prix d'action avant l'acquisition permet de profiter (pour l'acquéreur et ses actionnaires) d'une parité d'échange favorable. Dans un tel cas de figure, la gestion des résultats peut être mobilisée par l'acquéreur. Ces comportements visent à augmenter les bénéfices avant acquisition et à orienter l'évaluation de marché afin d'accroître le prix d'action.

Deux études ont observé les comportements de la gestion des résultats dans un contexte de fusion et d'acquisition. La première est faite par Ericson et Wang (1996), celle-ci observe les comportements de la gestion des résultats des 78 acquéreurs qui paient uniquement en titre, de 1985 à 1990. Il indique que ces entreprises gèrent les résultats à la hausse par la gestion des accruals avant l'acquisition, afin de payer moins cher la société cible acquise. L'importance de ce comportement est positivement liée à la taille relative de l'entreprise cible. En utilisant les données de fusions et acquisitions entre 1992 et 2000, Louis (2004) examine et suggère également que les acquéreurs qui paient uniquement en titre utilisent la gestion des résultats via la façon comptable avant

l'acquisition, ce pour des raisons identiques à celles évoquées par Ericson et Wang (1996). Le comportement de gestion de résultat des entreprises payant en liquidité, ou via un mix de titres et de liquidité ne nous semble pas avoir été analysé. De même, nous n'avons pas connaissance de travaux étudiant la possibilité pour les acquéreurs de recourir à une gestion réelle du résultat.

2.2 Quelles conséquences de la gestion du résultat ?

Une littérature analyse spécifiquement l'impact des comportements de gestion des résultats. La plupart des études montrent que les comportements de gestion des résultats induisent des effets négatifs sur les performances futures. Deux études, Sloan, (1996) et Gunny, (2010), observent l'effet de la gestion des résultats dans un scénario sans événement. Utilisant un échantillon de 40 679 années d'entreprises pendant les années 1962 à 1991, le premier article rapporte une relation significative et négative entre les comportements de gestion des résultats via les accruals et les rendements à long terme. Le deuxième article examine l'effet d'une gestion réelle des résultats via quatre méthodes typiques : (1) la réduction les dépenses de R&D, (2) la réduction des frais de vente, frais généraux et frais administratifs (SG&A) ; (3) la gestion de l'échéancier de la constatation du revenu ; (4) la réduction les prix afin d'augmenter les ventes et de réduire le coût moyen de production. L'article montre que le comportement REM est positivement associé avec la recherche d'un niveau de résultat permettant de satisfaire les attentes données par les analystes financiers résultats. De façon particulièrement intéressante, l'article suggère que ces entreprises ont de meilleures performances que celles qui n'utilisent pas ces comportements de gestion réelle des résultats.

La littérature indique un effet d'inversion ou de retour (« reversal ») sur les comportements de gestion des bénéfices. DeFond and Park (2001) indique un effet d'inversion des accruals discrétionnaires et souligne que le marché financier anticipe cet effet mais de façon limitée. Baber, Kang et al. (2011) présente des éléments empiriques suggérant cet effet d'inversion des comportements de gestion des bénéfices via les accruals.

Vorst (2015) indique que cet effet d'inversion existe également pour les comportement de gestion réelle des bénéfices (REM). Cet effet dégrade la performance future de l'entreprise et cet impact varie au moyen de différents incitants de REM.

Dans un contexte des opérations d'augmentation du capital, deux études (Cohen and Zarowin, (2010) et Kothari, Mizik et al., (2016) notent que les deux façons à gérer les résultats (comptable et non-comptable) ont des effets négatifs sur la performance future. Au delà, Cohen and Zarowin, (2010) suggère que l'effet d'inversion de la gestion réelle est plus sévère que celui de la gestion comptable.

Concernant plus spécifiquement les opérations de fusions et acquisitions, Louis, (2004) soutient qu'un effet d'inversion caractérise la gestion comptable des résultats. Il indique que la gestion des résultats a un effet négatif sur les prix d'action à court terme et à long terme, pour les acquéreurs qui paient uniquement en action. Les conséquences de la gestion réelle des résultats ne semblent toutefois pas avoir été étudiées. De même, les effets concernant les acquéreurs qui paient en liquidité ou en une combinaison de titres et de liquidité semblent encore inexplorés.

2.3 Quelles mesures de la gestion du résultat

2.3.1 Accruals management : gestion comptable du résultat.

La façon comptable impacte les résultats au travers d'ajustements des accruals. La littérature suggère différent modèle de détection : le modèle de Jones (Jones, 1991), le modèle de Jones modifié (Dechow, Sloan et al., 1995) ou encore d'autres modèles dérivés du modèle de Jones modifié. Tous ces modèles ont une logique similaire : il convient d'estimer un niveau « normal » d'accruals puis de calculer par différence entre le niveau observé d'accruals et le niveau « normal » , un niveau « anormal » d'accruals témoignant de la gestion du résultat de l'entreprise. Des tests statistiques sont ensuite convoqués afin de juger de la significativité de cet accruals « anormal » ou « discrétionnaire ».

Parmi ces modèles mentionnés ci-dessus, la différence principale se trouve dans la façon d'estimer le niveau normal des accruals. Le modèle de Jones (équation 1) estime le niveau normal des accruals en utilisant le changement dans le compte « revenus » et le niveau du compte « immobilisations corporelles ». Le modèle de Jones modifié (équation 2) utilise le changement dans le compte « ventes » moins le changement dans le compte « recevables » et retient toujours le niveau du compte « immobilisations corporelles ». Les d'autres modèles dérivés sont au modèle de Jones modifié et introduisent certaines variables de contrôle comme le rendement des actifs (modified Jones model with ROA, qui est proposé par Kothari, Leone et al., (2005)) ou le ratio Book-to-Market et le flux de trésorerie (modified Jones model with book-to-market ratio and cash flows, qui est présenté par Larcker and Richardson, (2004)).

$$TA_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 \Delta Revenue_{it} + \beta_3 PPE_{it} + \upsilon_{it} \quad (1)$$

$$TA_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 (\Delta Sales_{it} - \Delta Receivable_{it}) + \beta_3 PPE_{it} + \upsilon_{it} \quad (2)$$

2.3.2 Real earnings management

Des études plus récentes proposent différentes façons de détecter le comportement de la gestion des résultats via leur impact sur le flux global de liquidité généré par l'entité. Roychowdhury, (2006) indique trois façons : le niveau anormal du flux de trésorerie, le niveau anormal des dépenses discrétionnaires et le niveau anormal du coût de production.

Les niveaux normaux de ces trois mesures sont estimés par les régressions transversales (cross-sectional regressions) pour chaque année et chaque secteur en utilisant les modèles suivants :

$$\widehat{CFO_{it}} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it} + \beta_3 \Delta Sales_{it} + \upsilon_{it} \quad (3)$$

$$\widehat{DiseXP_{it}} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it-1} + \upsilon_{it} \quad (4)$$

$$Prod_{it} = COGS_{it} + \Delta INV_{it} \quad (5)$$

$$\widehat{Prod_{it}} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it} + \beta_3 \Delta Sales_{it} + \beta_4 \Delta Sales_{it-1} + \upsilon_{it} \quad (6)$$

$COGS_{it}$ et ΔINV_{it} représentent le coût des produits vendues pendant l'année t et la variation de l'inventaire pendant l'année t.

Les niveaux anormaux de ces mesures sont calculés par ses valeurs actuelles moins les valeurs normales estimées, qui sont obtenus en utilisant les modèles ci-dessus.

Le niveau anormal négatif du flux de trésorerie, le niveau anormal négatif des dépenses discrétionnaires et le niveau anormal positif du coût de production témoignent d'une gestion des résultats. L'importance de ces comportements est déterminée selon ses valeurs en comparant le niveau moyen du secteur.

Kothari, Mizik et al., (2016) suggère une modalité supplémentaire de gestion réelle : le niveau anormal de dépense de recherche et développement. Il est calculé comme le résidu dans l'équation 7 qui est l'expression d'un modèle autorégressif de premier ordre en utilisant les données de dépenses de recherche et développement et de vente de l'entreprise. La valeur négative significative du niveau anormal de ce proxy indique un comportement de la gestion des résultats.

$$R\&D_{it} = \alpha_{rd\ i} + \Phi_{rd} * R\&D_{it-1} + \gamma_{sales} * Sales_{it-1} + \sum_{\tau-1}^{T} V_t * Time(\tau) + \varepsilon_{rd\ it} \quad (7)$$

2.3.3 Changement de classification

Le comportement de la gestion des résultats via le changement de la classification a été suggéré par McVay, (2006.) Ce dernier mobilise une analyse du résultat central (ou core earnings) (CE_t) pour détecter ce type de comportement. Le niveau normal du CE_t est estimé par sa valeur de l'année précédente, le taux de rotation de l'actif, le niveau d'accruals et de chiffre d'affaires, ainsi que l'indique l'équation suivante (8) :

$$CE_t = \beta_0 + \beta_1 * CE_{t-1} + \beta_2 * ATO_t + \beta_3 * Acc_{t-1} + \beta_4 * Acc_t + \beta_5 * Sales_t + \beta_6 * Neg\Delta Sales_t + \varepsilon_t \quad (8)$$

La valeur de CE_t est calculée comme le résultat d'exploitation avant amortissements divisé par le chiffre d'affaires et le niveau anormal de cette variable est obtenu par la différence entre la valeur observée et la valeur normale estimée par l'équation 8. La gestion des résultats est déterminée par le niveau anormal du core earnings et par la variation dans le compte des « éléments spéciaux ».

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CHAPITRE 2: STOCK PAYMENT ACQUIRERS' PRE-ACQUISITION EARNINGS MANAGEMENT AND POST-ACQUISITION PERFORMANCE

ABSTRACT

We investigate pure and major (stock exchange proportion between 51% and 99%) stock payments acquirers' earnings management (EM) patterns in the years around merger and acquisition (M&A) operations using both accruals management (AM) and real earnings management (REM) measures. We analyze the impact of pre-acquisition EM choices, the choice of the method of payment for the acquisition and the passage of Sarbanes–Oxley Act (SOX) on a firm's post-acquisition performance. This paper contributes to the literature in four main aspects. First, both AM and REM are likely to be used by the two groups of stock payment acquiring firms. Second, among the REM methods, pure (major) stock firms prefer to manage through abnormal discretionary (R&D) expenses, and a clear substitution effect is noted between AM and REM methods. Plus, moderate degree of pre-acquisition AM has a positive impact on a firm's post-acquisition operating performance, while REM do not have similar effect. In contrast, a negative impact comes from a high degree of REM. However, these impacts seem to not be captured by the financial market, either in the short term or in the long term. Result suggests a "market unawareness" of the acquiring firm's pre-acquisition EM behaviors. The market prefers a "unified" valuation strategy according to the acquisition payment method. Finally, the above results provide evidence for the use of EM by major stock payment acquirers and they have particular pre-acquisition EM strategies. These facts cannot be observed if they are not split from the original mixed payment sample.

Keywords: earnings management, trade-off strategy, accruals management, real earnings management, mergers and acquisitions, method of payment

JEL codes: G14 G34 M41

1. Introduction

This paper analyzes acquiring firms' earnings management (EM) behaviors before mergers and acquisitions (M&As) and their effects on post-acquisition performance. Previous literature shows that the 100% stock-for-stock (pure stock) acquiring firms are likely to manage their earnings to inflate their stock price before acquisition in order to improve exchange parity (Erickson and Wang, 1996; Louis, 2004). Additionally, the magnitude of AM behaviors is positively related to the target firm size and these behaviors lead to a negative reversal effect on the firm's future performance.

Three main limits exist of the previous literature. First, these studies focused only on the accounting-based EM method of accruals management (AM); the alternative EM method – real earnings management[1] (REM) – is also likely to be used by acquiring firms but it, as well as the trade-off strategy between them, has been only rarely discussed in the literature. Plus, mixed payment (paid partly in cash and stock exchanges) deal samples have not yet been discussed. Third, the Sarbanes-Oxley Act (SOX) was enacted in July 2002, which tightens public firms' reporting standards and increases financial transparency. The passage of SOX could have significant impacts on a firm's EM behaviors, especially through the AM method. This effect has not been observed either.

The main contributions of this paper are as follows. Acquiring firms use not only AM but also REM as pre-acquisition EM methods. The choice between these EM methods is related to the EM combination, the payment method of acquisition, the size of the target firm, the availability of AM, the Sarbanes–Oxley Act (SOX) and industry expertise. In addition, a moderate degree of AM can mitigate the negative impacts on post-acquisition performance, while REM does not have similar effects. Besides, a high degree of REM brings negative impact on firm's performance. Plus, the market seems ineffective in perceiving pre-acquisition management behaviors in either the short term or the long term. It prefers a "unified" reaction according to the payment method of the acquisition. Major stock payment firms and pure stock acquirers have similar EM strategies and post-acquisition performances. Our findings are important; they show that stock payment

[1] Real earnings management is also called real activities management in the literature.

acquiring firms are not "REM-free"; some (those engaging in pre-acquisition AM) seem to be guiltless of negative market reactions, and major stock payment acquirers might also be on the "pre-acquisition EM disclosure" list.

Prior research about EM in an M&A context (Erickson and Wang, 1996; Louis, 2004) provided evidence that pure stock acquirers use AM before acquisitions. In contrast, as far as we know, REM has rarely been mentioned. However, there are at least four reasons why acquirers use REM.

First, AM may have become less effective, costlier and riskier in the past decade. It has been more than ten years since AM was first mentioned in the above literature, and the market may have gradually become more adept at identifying it. In addition, after the Internet bubble burst and huge accounting scandals of the year 2000, investors have paid more attentions to firms' earnings quality. These mixed effects may have made the pre-acquisition AM strategy less effective.

More importantly, since the year 2002, the SOX has made it more difficult for public firms to manage their earnings through accounting methods. The related cost and the risk of being scrutinized by external auditors and regulators also increased. Cohen et al. (2005) show a significant decrease in AM use after the SOX was passed. In this case, when acquiring firms want to reach a certain "earnings inflation" goal before acquisition, they may reduce AM use in order to control the cost and risk at an acceptable level and use REM in a complementary way to fill the gap and attain this goal.

Second, RAM is less likely to be detected by external auditors and regulators, and it has become more important and attractive to firms in recent years. Graham et al. (2005) and Cohen et al. (2008) indicated that firms shifted from AM to REM after the passage of SOX. The prior literature provides evidence of the substitution effect between AM and REM in a "no-event" context (Cohen et al., 2008; Zang, 2012) and around second equity offer (SEO) activities (Cohen and Zarowin, 2010), while this effect has not been analyzed in an M&A context, as far as we know.

Third, firms could switch to REM when managing earnings through accruals is constrained. Cohen and Zarowin (2010) indicated that the choice between AM and REM depends on their availability. Zang (2012) also indicated a trade-off strategy between AM

and REM in a no-event context, based on their related costs. On occasions of successive acquisitions, REM is likely to be engaged when the discretionary accruals are used for the previous target.

Finally, compared to AM, RAM provides not only "literal earnings" but also "real cash", which could stabilize cash flows and counter the potentially important extraordinary expenses of acquisition. Additionally, for deals paid partly by stock exchange (and partly by cash), the cash flow generated from REM also provides another way to prepare cash to pay its target.

The first purpose of this paper is to observe whether the stock payment acquiring firms use AM and/or REM before acquisition.

Second, this paper investigates whether these pre-acquisition EM behaviors impact firms' performance after acquisition in both the short term and the long term.

Third, because prior EM research (Erickson and Wang, 1996; Louis, 2004) does not observe the impact of the SOX, we attempt to capture this effect on a firm's EM choice and post-acquisition performance. We also investigate the impacts of deal characteristics or acquiring firms' features on EM choice and post-acquisition performance.

Finally, we measure whether the financial market effectively perceives a firm's EM behaviors in the short and long terms and give related reactions.

We use a sample of domestic public firms in the U.S. market from 1983 to 2016. A 7-year window around operation is observed for each deal; therefore, the M&A sample ranges from 1986 to 2013. Abnormal accruals [2] (AA) are used to detect firms' use of AM and four measures to capture firms' REM. Then, we use 3-day cumulative abnormal returns (CAR) and cumulative stock returns to capture the market's short-term and long-term reactions. The abnormal return on assets (rROA) is applied to analyze firms' post-acquisition performance in the long term.

This paper makes following contributions to the literature: First, we measure the pre-acquisition AM strategy in the pre- and post-SOX periods. Compared to findings in the literature (Erickson and Wang, 1996; Louis, 2004), we find that the degree of pre-

[2] Also denoted as "unexpected accruals" or "discretionary accruals" in the literature.

acquisition AM behavior is less important for pure stock payment acquirers, possibly because of the disclosure of this strategy, the awareness of the financial market and the impact of SOX. While this disclosure does not involve "major stock" acquirers (stock exchange proportion between 51% and 99%), the pre-acquisition AM strategy seems be adopted by pure stock acquirers.

In addition, we investigate the trade-off strategy between two earnings management (EM) methods in an M&A context. We find a substitution relationship between AM and REM, while the latter is not the first choice of stock payment acquirers. However, REM could be an alternative choice when AM is not available. The choice is related to acquisition's payment method, size of acquisition, the industry expertise, auditor's tenure, whether acquirer is reviewed by a Big 8 auditor and whether acquirer made an acquisition(s) shortly before the SOX was passed.

Third, we find that a moderate degree of AM use has positive effects on firm's post-acquisition performance, while REM use does not. These positive effects mitigate the negative impacts of the stock payment method. The SOX has negative impacts on firms' long-term performance.

Moreover, we discover that "major-stock" acquirers and acquirers paid 100% in stock have similar post-acquisition performance, and these results can be obtained only if this subsample is split from "mixed payment" acquirers.

Finally, the financial market seems ineffective in detecting firms' pre-acquisition behaviors; therefore, it gives a "unified" reaction according to an M&A's payment method at its announcement. In the long term, the market appreciates firm's future growth to its current performance, and pre-acquisition management no longer matters, even though acquirers that use pre-acquisition AM have significantly better performance.

The rest of this paper is organized as follows: Section 2 reviews related literature and states the hypotheses, Section 3 describes the data and methodology, Section 4 gives empirical evidence on EM, Section 5 explores the trade-off strategy for EM, Section 6 investigates acquiring firms' post-acquisition performance, and Section 7 concludes the study.

2. Related literature and hypothesis development

2.1 EM in the pre-acquisition period

The previous literature has investigated acquiring firms' AA around M&A deals and has provided evidence for the AM behaviors among stock-for-stock acquirers (Erickson and Wang, 1996; Louis, 2004).

However, it has been more than ten years after the above studies were published, which means that this pre-acquisition AM strategy has long been known to the public. The effectiveness of this strategy may be reduced by the market's awareness in recent years.

In addition, this awareness brings more market scrutiny from investors, auditors, financial analysts and regulators. When acquiring firms suggest stock exchange payments to the target firm, if the latter observes AM, it is very likely to raise the price and make the acquiring firms pay more. Plus, over-used accruals also create more risk of being detected and raise potential litigation costs. Therefore, this additional scrutiny would raise the potential cost of using pre-acquisition AM.

When acquiring firms need to manage their earnings despite increased costs and reduced effectiveness in using AM, REM could be an alternative solution. Zang (2012) observed all public firms' EM behaviors from 1987 to 2008, and the results suggested a substitutive relationship between AM and REM, and managers' EM choices were affected by the related costs, the industry's competitive status, and the level of monitoring from investors.

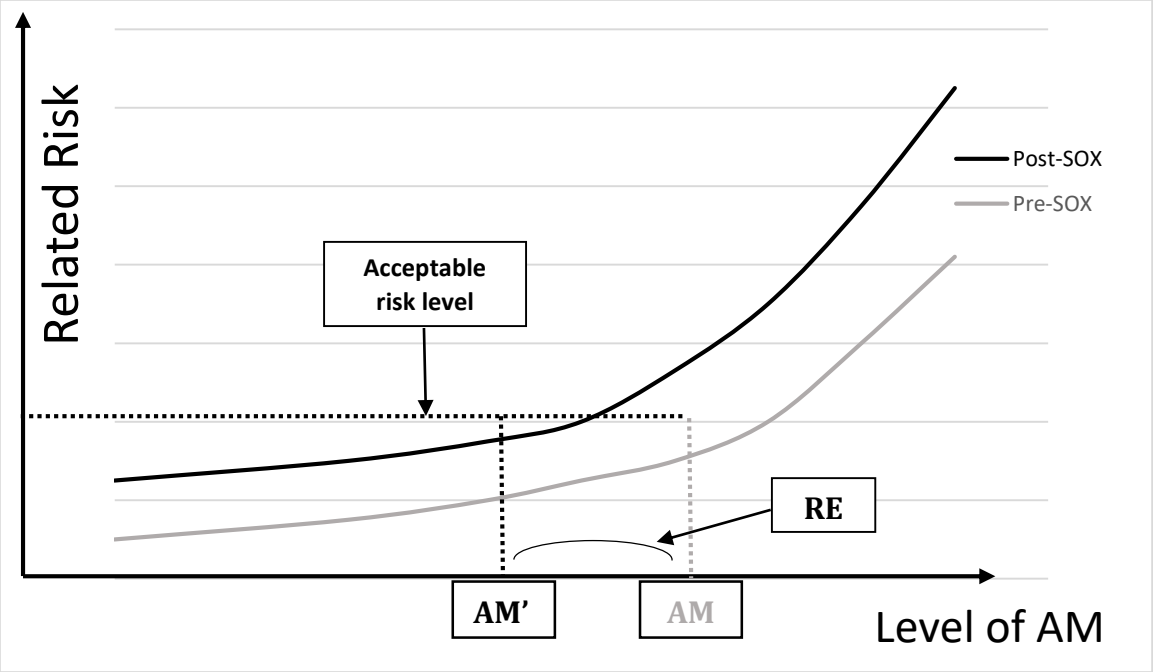
Cohen and Zarowin (2010) report a substitution relation between AM and REM around SEO activities. The choice between AM and REM depends on the availability of accruals and the related cost of using AM or REM. Kothari et al. (2016) also give evidence on the presence of both AM and REM in the context of SEO and argue that REM is costlier than AM in the long run.

The above literature observes firms' REM behaviors and the choice between AM and REM in a "no-event" and SEO context, while acquirers' REM behaviors in an M&A context remain unexplored. In fact, REM is also likely to be used by acquiring firms through substitutive and complementary methods for the following reasons.

Gunny (2010) shows two cases in which REM may be more interesting to firms. The first is that AM could be riskier for SEC scrutiny and litigation actions. The second is that firms could have limited flexibility in using accruals. In an M&A scenario, both of the above reasons can be satisfied. The first case is exactly what has occurred after the passage of the SOX. In the second case, for example, the successive acquisition situation is in accordance with this scenario. When an acquirer has made another recent major previous acquisition for which AM is used, the availability of accruals could be limited for the next deal, and RAM could be helpful to the firm in this situation.

Moreover, in addition to a substitution effect, REM may also be used in a complementary way: as the pre-acquisition AM strategy becomes less effective, costlier and riskier to be scrutinized by auditors and regulators, when acquirers want to reach certain "earnings inflation" goal, they may reduce the magnitude of AM to keep the costs and risks at an acceptable level; meanwhile, REM is used in a complementary way to fill the "earnings inflation" gap and achieve this goal.

Figure 1



Moreover, since 2002, the SOX has imposed new rules in accounting and the transparency of financial information, which makes it more difficult for public firms to manage their earnings through AM. When firms use AM, the risk of being scrutinized by auditors and regulators increases as well. Cohen et al. (2005) illustrate a significant decrease in using

AM after the passage of the SOX. As shown in the above illustration, because the SOX increases the related risk of AM, REM may be a substitute for a portion of AM to maintain the risk at an acceptable level.

The first main hypothesis aims to observe whether stock payment acquirers use pre-acquisition AM and REM and how acquiring firms choose between these EM methods.

HYPOTHESIS 1: *Stock payment acquirers are likely to manage their earnings before acquisition through either AM or REM.*

To be more specific, we investigate acquirers' EM behaviors suing both AM and REM and the trade-off strategy between them.

HYPOTHESIS 1a: *Stock payment acquirers are likely to use AM pre-acquisition.*

HYPOTHESIS 1b: *Stock payment acquirers are likely to use REM pre-acquisition.*

HYPOTHESIS 1c: *Stock payment acquirers have a preference between AM and REM.*

2.2 Impact of EM behaviors on firms' future performance

The previous literature presents different arguments on the impacts of EM – through both AM and REM – on a firm's future performance. Sloan (1996) examines a sample of 40,679 firm-years from 1962 to 1991 and reports a significant and negative relation between accruals and long-term returns. Louis (2004) argues that the accrual effect is not general and that this negative relation is significant when it is associated with incentives related to accruals. Louis (2004) also provided evidence for the negative effects of pre-merger EM (accruals management) on stock-for-stock acquirers in both the short term and the long term. Additionally, he suggests that these effects seem to not have been detected by financial analysts. Ardekani et al. (2012) observe acquirers' EM behaviors in Malaysia's M&A market from 2004 to 2010 and report a similar negative effect on post-acquisition performance.

Cohen and Zarowin (2010) and Kothari et al. (2016) indicate that REM is more costly than the AM in the long run in an SEO context. Moreover, Kothari et al. (2016) give more details about the effect of three different combinations of AM and REM – "AM only", "REM only" and "AM & REM" – on post-SEO performance. The results suggest that the "REM only" strategy brings significantly negative effects and the "AM & REM" strategy leads to a significantly negative impact, while the "AM only" strategy has no significant negative impacts.

Gunny (2010) examines the impacts of four typical REM methods on firm performance: cutting R&D expenses, reducing Selling, General and Administrative Expense (SG&A) investment, timing income recognition from long-term assets and investments and cutting prices to boost sales to reduce the average production cost and COGS expense. He shows that REM behavior is positively connected to firms that just meet earnings benchmarks. More importantly, he finds that these firms have better subsequent performance than those who do not use REM.

Different arguments are shown about the consequences of EM behavior. This paper observes the impacts of EM during a specific event – M&A operations: whether pre-acquisition EM impacts the acquiring firm's post-acquisition performance in both the short and long terms.

HYPOTHESIS 2: *Pre-acquisition EM behaviors affect the acquiring firm's post-acquisition performance.*

In detail, we observe these impacts from pre-acquisition AM and pre-acquisition REM.

HYPOTHESIS 2A: *Pre-acquisition AM impacts an acquirer's post-acquisition performance.*

HYPOTHESIS 2B: *Pre-acquisition REM impacts an acquirer's post-acquisition performance.*

In addition to testing the two main hypotheses, we will examine a few other interesting points. Previous literature suggests that different EM behaviors are adopted by pure cash and pure stock acquirers. Because the mixed payment deals involve both cash payments and stock exchange, the question on how to classify this group of deals (firms) and the angle from which to observe their EM behaviors becomes tricky.

There are generally two ways to treat the mixed payment deals in prior research: exclude them from the observation sample (Ardekani et al., 2012; Erickson and Wang, 1996; Louis, 2004) or regard them as pure stock deals (Francoeur and Rakoto, 2006)

However, neither treatment is perfect for two main reasons: first, the deal number and the total value for this subsample cannot be neglected (888 among 2,956 observations, approximately 30% in our M&A sample). Second, regarding the payment method, an acquisition paid 90% in cash and 10% in stock exchange can hardly be the same as that paid by 100% stock exchange. The previous case may close to a pure cash deal while the latter could be close to a pure stock one.

In this paper, we split the mixed payment deals into two subsamples: "major-stock" payment deals denote the subsample of mixed payment deals in which more than 51% is paid by stock exchange, and "major-cash" payment deals are defined as those in which the cash payment portion is between 51% and 100%.

This paper focus on stock payment acquirers' EM strategy, we observe whether the "major-stock" acquirers have similar EM choices and post-acquisition performance as the pure stock acquirers.

HYPOTHESIS 3a: *The "major stock" acquirers make the same EM choices as pure stock acquirers.*

HYPOTHESIS 3b: *The "major stock" acquirers have similar post-acquisition performance as pure stock acquirers*.

In addition, we also observe if the market can effectively perceive a firm's pre-acquisition EM behaviors and provide related reactions.

HYPOTHESIS 4a: *The financial market perceives firms' pre-acquisition EM behaviors and give related reaction around deal announcement.*

HYPOTHESIS 4b: *The financial market perceives firms' pre-acquisition EM behaviors and give related reaction in the post-acquisition years.*

3. Data and methodology

3.1 Sample description

Our M&A sample is obtained from the Securities Data Company (SDC) database, which consists of completed M&A deals between January 1, 1986, and December 31, 2009, and exclude financial institutions (SIC 6000–6999), regulated industries (SIC 4400–5000), and agriculture and fishing sectors (100-900). The sample also requires the following selection criteria:

- The acquiring and the target firms are listed U.S. firms,
- The deal size is greater than 1 million dollars,
- The deal is successfully completed,
- The acquiring firm holds less than 50% of the target shares before and 100% after acquisition,
- The acquirer has necessary data on the CRSP/Compustat database provided by Wharton Research Data Services (WRDS) and on the Institutional Brokers' Estimate System (I/B/E/S) database to access the concerned estimation models.

The observation period is seven years for each M&A deal (three years before and after the year each deal was made); therefore, the concerned firms' financial and accounting data period is from 1983 to 2016.

Table 1 reports descriptive statistics of our M&A sample. We get 2796 M&A deals for the total M&A sample; among them, 915 and 1049 are pure cash and pure stock payment deals, respectively, and 832 are mixed payment deals.

Table 1

Panel A: Distribution of M&As by year

Year	Number of deals	Year	Number of deals	Year	Number of deals
1986	91	1996	150	2006	91
1987	80	1997	182	2007	99
1988	88	1998	232	2008	63
1989	67	1999	204	2009	64
1990	51	2000	199	2010	70
1991	44	2001	146	2011	38
1992	49	2002	90	2012	54
1993	62	2003	91	2013	44
1994	111	2004	93		
1995	149	2005	94		

Panel B: Distribution of M&As by industry

Industry	Observations
(10-14) Mining, oil, gas	167
(15-17) Construction	19
(20-39) Manufacturing	1341
(40-49) Transport, utilities, communication	259
(50-51) Wholesale	90
(52-59) Retail trade	161
(70-89) Services	759
Total	**2796**

Panel C: Distribution of M&As by payment methods

M&A payment methods	Observations
Pure cash payments	915
Pure stock-for-stock payments	1049
Mixed payments	832
Total	**2796**

3.2 REM proxy

Among the REM models shown in the previous literature (Graham et al., 2005; Kothari et al., 2005; Roychowdhury, 2006), the primary model we use measures REM as the abnormal reduction in Research and Development (R&D) expenditures. Following Kothari et al. (2016), we detect firms' REM by observing an abnormal reduction in their R&D expenditures. Firms generally incur R&D expenditures for benefit and profit in the long term. However, when these firms face a large output of cash flow in the foreseeable future, opportunistically reducing R&D expenditures is an efficient way to increase operating cash flow and stabilize (or increase) firms' profitability (Roychowdhury, 2006).

We use time series panel data to model R&D expenditures. The normal level of R&D expenditures is estimated using first-order autoregressive panel data:

$$R\&D_{it} = \alpha_{rd\ i} + \Phi_{rd} * R\&D_{it-1} + \gamma_{sales} * Sales_{it-1} + \sum_{\tau-1}^{T} V_t * Time(\tau) + \varepsilon_{rd\ it}$$

$R\&D_{it}$ is the value of firm i's estimated size-adjusted R&D at time t and $R\&D_{it-1}$ is its lagged value. $Sales_{it-1}$ is the value of firm i's sales at time t-1. Time(τ) is a dummy variable for which 1 stands for the year τ and 0 for the other cases.

The model estimates a normal value of R&D expenditures on a firm level ($\alpha_{rd\ i}$), which depends on data from a firm's previous-year R&D expenditure and, sales and the economic-wide mean of the series in a given year (V_t). Negative abnormal reductions in R&D expenses signify REM behavior.

In addition to abnormal R&D expenses, we also applied three REM proxies from Roychowdhury, (2006): abnormal levels of Operation Cash Flow (rCFO), Discretionary Expenses (rDiseXP) and Production Costs (rProd).

The normal levels of CFO, DiseXP and Prod are estimated for cross-sectional regressions for each year and industry using the following models:

$$\widehat{CFO_{it}} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it} + \beta_3 \Delta Sales_{it} + \upsilon_{it}$$

$$\widehat{DiseXP}_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it-1} + v_{it}$$

$$\widehat{Prod}_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 Sales_{it} + \beta_3 \Delta Sales_{it} + \beta_4 \Delta Sales_{it-1} + v_{it}$$

$$Prod_{it} = COGS_{it} + \Delta INV_{it}$$

$Sales_{it}$ and $Sales_{it-1}$ denote size-adjusted sales during year t and during year t-1,

$\Delta Sales_{it} = Sales_{it} - Sales_{it-1}$, $COGS_{it}$ and ΔINV_{it} stands for the cost of goods sold in year t and the change in inventory in year t.

The abnormal level of CFO is computed as the actual CFO minus the "normal" level; the abnormal level of DiseXP is defined as the reduction in actual DiseXP from its "normal" level and the abnormal Prod is calculated by the actual Prod minus the "normal" Prod.

When firms use REM with these methods, negative abnormal CFO, negative abnormal DiseXP and positive abnormal Prod should emerge.

3.3 Accruals management (AM) proxy

We use the cross-sectional modified Jones model augmented for net income (Kothari et al., 2005) to detect AM, where AA (AM proxy) is computed as the difference between the actual value and estimated value of total accruals.

The actuals value of total accruals (TA_{it}) are computed as:

$$TA_{it} = (\Delta CA_t - \Delta Liab_t - \Delta Cash_t + \Delta STDebt_t - DepAm_t) / \ Assets_{t-1}$$

ΔCA_t, $\Delta Liab_t$, $\Delta Cash_t$, $\Delta STDebt_t$ denote firm's i's change in current assets, current liabilities, cash, and short-term debt, respectively, in year t. $DepAm_t$ denotes firm i's depreciation and amortization expenses in year t. Total accruals are computed as the result in parentheses scaled by logged total assets.

The model of the estimated value of total accruals ($\widehat{TA_{it}}$) is as follows:

$$\widehat{TA_{it}} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 \Delta Sales_{it} + \beta_3 PPE_{it} + \beta_4 NetIncome_{it} + \upsilon_{it}$$

where $\Delta Sales_{it}$, PPE_{it}, $NetIncome_{it}$ stand for firm i's change in net sales in year t scaled by lagged total assets, net property, plant, and equipment in year t scaled by lagged total assets and net income in year t scaled by lagged total assets, respectively.

The values of β_0, β_1, β_2, $\beta_3$and β_4 are measured by each year and industry (classified by 2-digit SIC codes) with a 10-observation minimum for each group. AA is computed as the difference between the actual total accruals (TA_{it}) and its predicted value ($\widehat{TA_{it}}$). Positive AA indicates a sign of AM behavior.

Abnormal Accruals (AA) = $TA_{it} - \widehat{TA_{it}}$

3.4 Post-acquisition performance

We investigate acquirers' post-acquisition performance in both the short and long terms. Three-day CAR are applied to observe short-term performance. To observe long-term performance, we use the abnormal return on assets (rROA) and the cumulative abnormal market return (rRET) to measure performance and market reaction one and two years after acquisition.

3.5 Cumulative abnormal returns (CAR)

We use the bidder's short-term CAR to observe firms' short-term performance and the market reaction after deal announcement. Acquiring firms' CAR is estimated by the market model using an estimation window from minus 235 to minus 36 with respect to the date of deal announcement as the value weighted market index proxy. CAR is computed as the sum of the residuals of the market model over the three-day event window ([-1, 1]) around the announcement date.

3.6 Abnormal stock returns

A matching sample model is used to measure acquiring firms' abnormal return in the post-acquisition period. For each acquiring company, we search for a control firm of similar size (market value) and with a similar book-to-market ratio. Following Barber and Lyon (1997) and Kothari et al., (2016), we denote the control firm as that with the market-to-book ratio most similar to that of the acquiring firm among all firms with a market value in the range of 70% to 130% of the acquiring firm. Additionally, control firms should have no M&A deals in the 7 years ([-3, 3]) around the observation year.

We choose the control firm in the same industry (classified by 2-digit SIC code) as each acquiring firm. For those firms for which a match could not be found, we continue to search for the non-matched acquiring firm at the 1-digit SIC code level, and the other firms are matched without SIC code constraints.

For the final matched sample, we obtain 89.63% successful matches for the whole sample (2506 of 2796). After merging all of the necessary financial information data, we obtain 2471 acquirers, and 92.47% (2285 of 2471) and 83.81% (2071 of 2471) have matches in terms of the cumulative abnormal stock returns in the first year and the first two years after acquisition, respectively.

We compute the cumulative abnormal stock returns for each acquiring firm in the first and first two years after acquisition as the difference between its own stock returns and that of its matched control firm.

3.7 Abnormal return on assets

Using the same matched control firm sample and the same logic to measure the abnormal stock returns, we calculate the abnormal return on assets for the acquiring firms in the first year and first two years after acquisition.

4. Descriptive statistics for EM proxies during the M&A period

Table 2 presents an overview of EM proxies (Panel A) and the descriptive statistics in the M&A samples (Panel B, C and D). AA is the proxy for AM, and abnormal reductions in R&D expenses (rRD), abnormal rCFO, abnormal discretionary expenses and abnormal production costs are REM proxies.

Table 2 panel A**:** Overview of EM proxies

All firms	**Obs**	**Mean**	**SD**	**Different from zero**
Abnormal Accruals (AA)	119084	-0.000	0.150	no
Abnormal R&D (rRD)	79438	0.000	0.183	no
Abnormal CFO (rCFO)	147766	-0.000	0.211	no
Abnormal Discretionary Expenses (rDiseXP)	178336	-0.000	0.297	no
Abnormal Production Costs (rProd)	123196	-0.000	0.246	no

The overall descriptive statistics for the EM proxies are displayed in Panel A. The mean values of these proxies are all close to zero for the whole estimation sample (all listed firms) and not different from zero, indicating no significant EM behavioral signs among the overall sample and years.

Table 2 panel B**:** The proportion of acquirers which are suspected at least one pre-acquisition EM

	Pure stock	Major stock	All deals
Pre-acquisition EM suspect proportion	94.8%	94.9%	93.8%

Panel B presents the proportion of acquiring firms which are suspected at least one EM method before acquisition. A high pre-acquisition EM suspect proportion is noted for pure stock acquirers (94.8%) and also for pure stock acquirers (94.9%) and all acquiring firms (93.8%). Result suggests that the pre-acquisition EM is not the exclusivity of pure stock acquirers, it's also likely to be used by those which use the other payment methods.

Table 2 panel C**:** REM proxies in the 7 years around M&A announcements

Year	-3	-2	-1	0	1	2	3
rRD-All	-0.007 ***	-0.008 ***	-0.009 ***	-0.009 **	-0.011	-0.013	0.000 *
rRD-Pure Stock	0.002 ***	0.007 ***	0.002 **	-0.002 *	0.000 *	-0.004 *	0.024
rRD-Major stock	-0.011	-0.011	-0.007 **	-0.009	-0.016	-0.017	-0.007 *
rCFO-All	0.030 ***	0.036 ***	0.033 ***	0.016	0.008 *	0.018 *	0.020 ***
rCFO-Pure Stock	0.018	0.022	0.021	-0.002 **	-0.012 ***	0.010	0.014
rCFO-Major stock	0.009	0.038 **	0.026 *	0.001	0.008	0.010	0.011
rDiseXP-All	-0.038 ***	-0.038 ***	-0.042 ***	-0.026 *	-0.020	-0.014	-0.018
rDiseXP-Pure Stock	-0.043 ***	-0.049 ***	-0.046 ***	-0.023	-0.002	-0.002	-0.009
rDiseXP-Major stock	-0.008	-0.011	-0.019	-0.008	-0.024	-0.004	0.000
rProd-All	-0.038 ***	-0.034 ***	-0.041 ***	-0.034 ***	-0.008	-0.002	-0.010 *
rProd-Pure Stock	-0.050 ***	-0.044 ***	-0.061 ***	-0.055 ***	-0.016	-0.007	-0.018 **
rProd-Major stock	0.004	-0.009	-0.017	-0.016	0.001	0.016	0.012

The REM proxies (rRD, rCFO, rDiseXP and rProd) are estimated by the following models: **rRD =** $R\&D_{it}$ - $\widehat{R\&D}_{it}$, **rCFO** = $CFO_{it} - \widehat{CFO}_{it}$, **rDiseXP** = $DiseXP_{it} - \widehat{DiseXP}_{it}$, **rProd** = $Prod_{it} - \widehat{Prod}_{it}$ (details in Sections 3.2). Results indicate the differences in the EM proxies' levels of the M&A acquiring firms in the acquisition years, compared to their industry's median level. "Year -3" to "Year +3" is relative to the M&A deal announcement.

The significance indicators (*, **, ***) in black indicate that the proxies are significantly different from the industry median levels and are suspicious for EM, indicating that the level of rProd is beyond their industry median, and the level of rCFO and rDiseXP is less than the industry median. Indicators in gray (*, **, ***) are those significantly different from the industry median but with opposite signs; therefore they are not suspicious for EM. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Panel C shows the statistics of the REM proxies of the M&A sample and the results of the difference in the T-tests between M&A firms and the median level in the 7 years around the deal announcement. Among all of the acquiring firms, we observe a significant, abnormal reduction in RD and DiseXP in the year before the deal announcement.

The statistics also show that these two stock payment groups have different the EM patterns. In general, the magnitude of their REM behaviors is less important than that of the overall sample. In detail, significant signs of rRD are observed among the major stock acquirers before acquisition. Plus, we find significant signs of rDiseXP and rCFO among the pure stock payment acquiring firms and signs of rRD for the "major-stock" firms. The results indicate that these stock payment acquirers are also likely to manage their earnings through REM.

Panel D presents the statistics and the test of difference for AA during the 7 years around acquisition. In the three pre-acquisition years, no significant sign of AM is observed. That may because after the passage of SOX, firms become more cautious in their AM behaviors, which is in line with Cohen et al. (2005). And that may also because the use of AM is not

general. The sign of AM may be quite significant among a certain stock payment acquirers, but these signs are diluted by the other no-AM stock payment acquires and become non-significant in a global landscape.

Table 2 panel D**:** AM proxies in the 7 years around M&A announcements

Year	-3	-2	-1	0	1	2	3
Abnormal Accruals-All	-0.005 ***	-0.001 *	-0.007 ***	-0.009 ***	-0.009 ***	0.000 *	0.001
Abnormal Accruals-Pure Stock	-0.010 **	0.003	-0.015 ***	0.001	-0.011 **	0.007	0.003
Abnormal Accruals-Major Stock	0.001	-0.002	0.012	-0.003	0.000	-0.003 *	0.000

Abnormal Accruals are estimated by the modified Jones model augmented for current net income (Kothari et al. 2005) (details in Sections 3.3). Results indicate the differences in the EM proxies' levels of the M&A acquiring firms in the acquisition years, compared to their industry's median level. "Year -3" to "Year +3" is relative to the M&A deal announcement.

The significance indicators (*, **, ***) in black indicate that the proxies are significantly different from the industry median levels and are suspicious for EM, indicating that the level of AA / rProd is beyond their industry median, and the level of rCFO and rDiseXP is less than the industry median. Indicators in gray (*, **, ***) are those significantly different from the industry median but with opposite signs; therefore they are not suspicious for EM. *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Plus, in the year before acquisition, significant negative sign of AA is noted for pure stock acquirers. The level of AA is less important than in all M&A sample and also in which in the literature (Erickson and Wang, 1996; Louis, 2004). There are several possible reasons: first, the disclosure of the pre-acquisition AM; second, the awareness of AM from investors; third, a part of pure stock acquirers may avoid arousing the AM suspicion, in order to send a good earnings quality signal before acquisition.

On the other hand, the level of AA for major stock acquirers is much higher in this year. This group of firms seems benefit from being outside the "jurisdiction" of the disclosure of pre-acquisition AM strategy, because this AM strategy is generally considered to be used by the pure stock acquirers and these major stock firms have not yet been concerned.

Besides, although the sign of AM is not significant, the level of AA during the three pre-acquisition years seems higher among stock payment samples than in the overall M&A sample. That suggest these stock payment acquirers still prefer more AM than the others which use the other payment method. These results are in line with previous literature (Erickson and Wang, 1996; Louis, 2004).

5. The pre-acquisition EM

We advance a two-stage Probit model with the Heckman (1979) method to correct for sample firms' self-selection bias and investigate the choice between AM and REM methods. In the first stage, we estimate firms' probability of engaging in EM or not. In the second stage, conditional on the probability of using either AM or REM in the first stage, we observe the choice between these EM methods.

5.1 First stage: Do firms manage earnings before acquisition?

The first-stage analysis aims to explain whether acquiring firms engage in EM or not, regardless of which EM method (AM or REM) is chosen. Similar to Cohen and Zarowin (2010), we model firms' decision of whether to use EM as a function of incentives, as follows:

$$EM = \beta_0 + \beta_1 Hab\_Beater + \beta_2 Mkt\_Capt + \beta_3 Cash\ level + \beta_4 Leverage + \beta_5 MtoB + \varepsilon$$

We use acquirers' habitual earnings statements (*Hab_Beater*), size effect (*Mkt_Capt*), amount of cash holdings (Cash Level), capital structure and market-to-book ratios (*MtoB*) to estimate the probability of using EM when facing an acquisition.

The variable "*Hab_Beater*" is defined as the frequency with which a firm meets or beats analysts' earnings forecasts in the previous four quarters. The variable "Mkt_Capt" is the logged value of the acquiring firm's market capitalization in the observing year. The variable "$Cash\ level$" is the value of cash and cash equivalents in the observing year, scaled by the total assets. The variable "$Leverage$" is computed as total assets divided by total assets minus total liabilities. The variable "$MtoB$" is the firm's market-to-book ratio in the observing year.

In the pre-acquisition period, we investigate whether the value of each acquiring firm's EM proxies (AA) and rRD is beyond the normal industry level (median value for the 2-digit SIC code industry) in the year before acquisition. The dummy variable "EM" equals

one if acquirer is susceptible to either AM or REM in the observation year and zero otherwise.

The variable "Hab_Beater" is applied to capture the capital market incentives of managers' rewards for reaching certain goals (or benchmarks). Its value equals the number of the times that firm's quarterly actual earnings per share (EPS) meets or exceeds the analyst forecast consensus during the previous 4 quarters. Bartov et al. (2002) provide evidence that firms that constantly beat or meet analysts' forecasts if the firm provides a higher performance beat / meet premiums to managers. Therefore, when this premium is attractive, the manager could have a greater incentive to use EM to reach these goals.

After that, we use the firm's market capitalization (Mkt_Capt), the firm's cash and equivalent (Cash level), "$Leverage$" and market-to-book ratio ($MtoB$) to control for the firm's size, liquidity, capital structure and growth in order to control for the effects of these factors on firms' EM decisions when facing an acquisition.

Table 3 panel A: Trade-off strategies between EM methods before acquisition

1st Stage	**(1)** **Pre-acq EM** **(either AA or rRD)**	**(2)** **Pre-acq EM** **(either AA or rCFO)**	**(3)** **Pre-acq EM** **(either AA or rDiseXP)**	**(4)** **Pre-acq EM** **(either AA or rProd)**
Hab_Beater	-0.004	-0.053	-0.057	-0.029
	(0.035)	(0.035)	(0.036)	(0.035)
Mkt_Capt	0.009	-0.089***	0.021	-0.029**
	(0.015)	(0.015)	(0.016)	(0.015)
Cash Level	-0.070***	-0.025	-0.038	-0.044*
	(0.023)	(0.023)	(0.024)	(0.023)
Leverage	0.044	0.230	0.040	-0.262
	(0.178)	(0.179)	(0.184)	(0.177)
MtoB	-0.075***	-0.076***	0.088***	-0.170***
	(0.022)	(0.022)	(0.024)	(0.023)
Constant	0.347	2.191***	0.102	1.052**
	(0.505)	(0.524)	(0.534)	(0.516)
Industry and year fixed effect controlled				
Pseudo.R^2	0.064	0.067	0.049	0.068
Observation	2283	2289	2279	2286

Results of cross-sectional determinants of EM trade-off strategies in the year **before the acquisition**, from 2-step Heckman models consisting of two-probit regressions. The first step observes the determinants of the acquiring firm's EM choice, and the second step investigates the AM / REM choice conditional on the choice of EM.

Panel A shows the results from the first step, which presents the determinants of overall EM behaviors. The dependent dummy variable **EM** equals one if either the **AM** or **REM** proxy equals one. The AM proxy is **Abnormal Accruals**; Abnormal R&D expenditures (**rR&D**)**,** Abnormal Operating Cash-Flow (**rCFO**),

Abnormal Discretionary Expenses (**rDiseXP**) and Abnormal Production Cost (**rProd**) are the proxies of **REM**. **AA** are estimated by the modified Jones model augmented for current net income (Kothari et al. 2005). **rRD** = $R\&D_{it}$ - $\widehat{R\&D}_{it}$, **rCFO** = $CFO_{it} - \widehat{CFO_{it}}$, **rDiseXP** = $DiseXP_{it} - \widehat{DiseXP_{it}}$, **rProd** = $Prod_{it} - \widehat{Prod_{it}}$ (Roychowdhury 2006), more details in Sections 3.2 and 3.3) Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

In the first-stage analysis, we find that the acquiring firm's cash (Cash level) and market capitalization (Mkt_Capt) have negative impacts on its EM choice – larger acquiring firms are more cash holding and are less likely to use pre-acquisition EM methods. The results also suggest that high "MtoB" ratios are more likely to use a combination of "AA or rDiseXP", rather than the other three EM combinations. However, "Hab_Beater" shows no direct link with any EM strategy, which suggests the motivation to use EM in an M&A context is not driven by habitual EM patterns but by this operation.

5.2 Second stage: the choice between AM and REM

Based on the first stage of analysis of whether to engage in EM, we try to explain the choice between AM and REM using the following model:

$$REM\ \ (dummy) = \ \beta_0 + \beta_1 Payment\ \ + \ \ \beta_2 Relative\ \ Size + \ \ \beta_3 Conglomerate$$
$$+ \ \beta_4 Big8\ \ + \ \ \beta_5 Audit\ \ Tenure + \ \ \beta_6 SOX + \beta_7 Successive\ \ deal$$
$$+ \ \beta_8 Inverse\ \ Mills\ \ Ratio + \ \ \varepsilon$$

Three groups of variables are applied to capture the choice between AM and REM: M&A deal features (method of payment, relative size and conglomerate), acquirer characteristics (Big8 auditor, auditor's tenure) and other related factors (SOX and successive deal).

The dummy variable "REM" takes a value of one if the acquiring firm suspects REM in the year before acquisition[3] and zero otherwise. The dummy variable "$Payment$" includes dummy variables: either both "pure stock" and "major-stock" or nothing (as a control group). As mentioned in the previous section, we expect the dummy variable "$Payment$" to show different and significant signs in the AM and REM models.

We use the variables "$Relative\ \ Size$", "SOX", "$Big8$" to observe whether the relative deal size, the SOX, and use of a Big 8 auditor, respectively, affect the acquiring firm's EM choice. The variable "$Audit\ \ Tenure$" takes the value of the logarithm of the number of years using the same external auditor, which is used to investigate whether auditor seniority influences firms' EM choice. Relative deal size is calculated as the deal value scaled by the acquiring firm's market value. The variable "SOX" is used to observe whether the SOX affects firms' decision of EM choice. We expect the SOX to have a negative effect on the AM choice and a positive impact on the REM.

The dummy variable "$Successive\ \ deal$" takes a value of 1 if the observing firm has at least one other M&A deal during three years before acquisition. We expect this variable

[3] Another method is applied to define the pre-acquisition EM behaviors. The dummy variable "REM" takes a value of one if the acquiring firm is suspected of using a certain EM method for at least two years among the three pre-acquisition years, and we obtain similar results.

to have a negative (positive) impact on the choice of AM (REM) for the shortage in accruals in the successive deal case. The indicator variable "conglomerate" detects the influence of industry expertise on the EM choice; the variable equals 1 if the target firm is in the same industry as its acquirer (same 2-digit SIC code).

Table 3 panel B captures the choice between AM and the four REM methods (abnormal reduction in R&D expenses (*rRD*), abnormal operating cash flow (*rCFO*), abnormal discretionary expenses (*rDisexp*) and abnormal production cost (*rProd*)). They are presented in regressions (1)–(2), (3)-(4), (5)-(6) and (7)-(8), respectively.

Table 3 panel B: Trade-off strategies between EM methods before acquisition

2nd stage	(1) **Pre-acq REM (rRD)**	(2) **Pre-acq REM (rRD)**	(3) **Pre-acq REM (rCFO)**	(4) **Pre-acq REM (rCFO)**	(5) **Pre-acq REM (rDiseXP)**	(6) **Pre-acq REM (rDiseXP)**	(7) **Pre-acq REM (rProd)**	(8) **Pre-acq REM (rProd)**
Pure Stock	-0.024		0.335***		0.017		-0.043	
	(0.092)		(0.099)		(0.088)		(0.104)	
Major Stock	-0.417***		0.132		-0.117		0.017	
	(0.107)		(0.112)		(0.099)		(0.119)	
Relative Size	-0.207**	-0.213**	0.253**	0.289**	0.023	0.021	0.138	0.134
	(0.102)	(0.106)	(0.123)	(0.129)	(0.061)	(0.061)	(0.099)	(0.098)
Conglomerate	-0.082	-0.090	-0.346***	-0.329***	0.035	0.030	-0.095	-0.097
	(0.081)	(0.081)	(0.087)	(0.086)	(0.076)	(0.075)	(0.090)	(0.090)
Big 8	0.019	0.027	-0.425*	-0.444**	0.208	0.211	0.167	0.168
	(0.178)	(0.178)	(0.218)	(0.215)	(0.173)	(0.173)	(0.202)	(0.202)
Auditor's Tenure	0.001	0.000	-0.014***	-0.016***	-0.004	-0.004	-0.000	-0.000
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
SOX	0.087	0.097	-0.028	-0.108	0.024	0.023	-0.130	-0.121
	(0.096)	(0.093)	(0.098)	(0.095)	(0.092)	(0.089)	(0.100)	(0.097)
Successive Deal	0.255***	0.263***	-0.103	-0.112	0.099	0.100	0.142	0.143
	(0.084)	(0.084)	(0.090)	(0.090)	(0.078)	(0.078)	(0.092)	(0.092)
Inverse Mills Ratio	-1.379***	-1.428***	-0.649***	-0.588***	-0.814***	-0.822***	-0.800***	-0.815***
	(0.196)	(0.194)	(0.213)	(0.210)	(0.244)	(0.244)	(0.213)	(0.210)
Constant	1.174***	1.121***	1.281***	1.436***	0.854***	0.844***	0.807***	0.800***
	(0.237)	(0.233)	(0.270)	(0.262)	(0.220)	(0.214)	(0.264)	(0.259)
Pseudo.R^2	0.070	0.059	0.052	0.043	0.011	0.010	0.020	0.020
Observation	1112	1112	998	998	1393	1393	910	910

Follow the first step of analysis in Table 3 panel A ((1)-(4)), the corresponding second steps of the four REM models are shown in panel B ((1)-(8)). Based on the first stage of analysis (Table 3 panel A) of whether to engage in EM or not, the second step shows the determinants of the choice between AM and REM if the firm decides to manage its earnings.

Abnormal reduction in R&D (**rRD**)**,** abnormal operating cash flow (**rCFO**)**,** abnormal discretionary expenses (**rDiseXP**) and abnormal production cost (**rProd**) are the REM proxies**.** The dependent dummy variable REM equals one if the specified REM proxy lies beyond the industry level (median). **rRD =** $R\&D_{it}$ - $\widehat{R\&D}_{it}$ (Kothari et al., 2016), **rCFO** = $CFO_{it} - \widehat{CFO_{it}}$, **rDiseXP** = $DiseXP_{it} - \widehat{DiseXP_{it}}$, **rProd** = $Prod_{it} - \widehat{Prod_{it}}$ (Roychowdhury 2006) (more details in Section 3.2 and 3.3). Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively

The results indicate the following aspects. First, the pure and major stock payment acquirers show different pre-acquisition EM patterns, and the results indicate a clear sign of the substitution effect between AM and REM.

In general, pure stock payment firms prefer to manage using operating cash flow as their REM method while major stock firms prefer to do so through reduction in R&D expenses.

Plus, we also find that some other factors have significant impacts on the choice of EM methods. The relative size shows a clear, related link to the REM decision. It is positively correlated with the probability of using REM for the pure stock payment acquirers and negatively related to the choice of major stock payment firms' REM choices. Plus, the probability of using REM by pure stock payment firm's is negatively related to their industry expertise (*Conglomerate*), if it is reviewed by a Big 8 auditors (*Big8*) and the auditor's tenure (*auditor's tenure*).

In addition, we find that the recurrence of M&A deals (Successive deal) is positively in line with the probability of using REM for major stock acquiring firms, indicating that in the successive acquisition scenario, acquirers are more likely to shift the AM to REM, confirming our previous assumption. For the passage of SOX, the results show no significant impact on any EM strategies.

In summary, according to the analysis of the choice between AM and REM through different EM strategies, the results provide evidence for the substitution effect between AM and REM. They also indicate that pure stock payment acquirers prefer to manage the operating cash flow as the method of REM, while major stock firms prefer reduction in R&D. Plus, other factors might also have significant impacts on these EM choices, such as the industry expertise, if the firm is reviewed by a Big 8 auditor, the auditor's tenure and the recurrence of M&A deals.

6. Payment methods and post-acquisition performance

We use three performance proxies to analyze the acquiring firm's performance and the stock market reaction in short and long term after acquisition: value-weighted 3-day CAR at the announcement (*CARVW*), abnormal return on the stock market (*abn_RET*) and abnormal return on assets (*abn_ROA*) one and two years after acquisition.

To investigate the factors related to the acquiring firm's post-acquisition performance, we use three groups of factors. The model is as follows:

Performance proxy = Deal features + Acquiring firm features + control variables

First group contains the M&A deal-related factors, including the M&A payment method, pre-acquisition EM, relative deal size (*Relative size*) and target market value (*Target MV*), deal premiums and industry expertise (*Conglomerates*). We use relative size and target market value 4 weeks before acquisition as the proxies for the deal size. One-day, 1-week (*premium 1 week*) and 4-week deal premiums are the deal premium factors, and "conglomerate" is the dummy variable, which takes a value of 1 if the target firm has the same 2-digit SIC code as its acquirer.

The second group of variables includes acquiring firm features: The acquirer's number of shares, total assets and market value are size factors. We also include the acquiring firm's market-to-book ratio and the dummy variable "litigation", which equals one if the acquiring firm is in a high-litigation industry (SIC code: 2833-2836, 3570-3577, 3600-3674 and 8731-8734).

The last group contains the SOX act, which is observes whether the act impacts the firm's post-acquisition performance. We controlled year and industry fixed effects.

6.1 Short-term performance on the stock market

We observe the firm's short-term performance through CAR, using the same proxy as in the previous section. This short-term performance (3-day CAR [-1 day, 1 day]) around deal announcement is generally regarded in the previous literature as the market's reaction to the acquisition.

Table 4: The pre-acquisition EM and M&A announcement returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pure stock	-0.026***	-0.031***	-0.027***				
	(0.005)	(0.006)	(0.006)				
Major stock				-0.019***	-0.019***	-0.021***	
				(0.005)	(0.007)	(0.006)	
Mixed deals							-0.000
							(0.005)
Pure stock and Pre-acq AM		0.013					
		(0.010)					
Pure stock and Pre-acq REM			0.003				
			(0.009)				
Major stock and Pre-acq AM					0.002		
					(0.010)		
Major stock and Pre-acq REM						0.010	
						(0.011)	
Pre-acq AM	-0.000	-0.004		0.001	0.001		0.000
	(0.004)	(0.005)		(0.004)	(0.005)		(0.004)
Pre-acq REM	0.002		0.001	0.002		0.001	0.003
	(0.005)		(0.005)	(0.005)		(0.005)	(0.005)
Target MV	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***	-0.009***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Premium 1 week[4]	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Conglomerate	0.001	0.002	0.001	0.002	0.002	0.002	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Acquirer MV	0.002	0.002	0.002	0.003**	0.003**	0.003**	0.004**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
MtoB	-0.001	-0.001	-0.001	-0.003	-0.003*	-0.003	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Litigation sector	-0.017***	-0.018***	-0.017***	-0.020***	-0.020***	-0.020***	-0.019***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
SOX	0.034*	0.034*	0.034*	0.036*	0.036*	0.036*	0.036*
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Constant	0.130***	0.127***	0.131***	0.106***	0.105***	0.106***	0.106***
	(0.035)	(0.035)	(0.035)	(0.033)	(0.033)	(0.033)	(0.034)
Industry and year fixed effects controlled							
Adj. R^2	0.088	0.089	0.088	0.077	0.077	0.078	0.071
Observation	1851	1851	1851	1851	1851	1851	1851

This table reports the acquiring firm's cumulative abnormal return (CAR) after M&A announcement. Results of cross-sectional determinants of 3-day CAR. The acquiring firm's CAR is estimated by the market model, using an estimation window for days of [-235, -36] with respect to the date of deal announcement, as the value weighted market index proxy. The CAR is computed as the sum of the residuals of the market model over a three-day event window ([-1, 1]) around the announcement date. The EM proxies are defined in the same manner as in the previous section. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

[4] We also test the Deal Premium at 1 day and at 4 weeks, and we find similar results.

Among the deal characteristics, we find that the market reactions are very similar for the pure stock payment firms and the major stock payment firms, which pay their target mainly by the stock exchange. Both groups of acquirers attain a negative market reaction after deal announcement.

Plus, we find that pre-acquisition AM and REM show no significant impacts on the market reaction, suggesting that the financial market does perceive a firm's pre-acquisition EM at the moment of acquisition announcement. As a result, the market provides a "unified" reaction according to the M&A payment method.

In addition, the results show a negative sign for target size (market value before acquisition). Compared to small acquisitions, the market is less optimistic about large deals. In addition, the deal premium shows a statistically significant sign but no economic impact. The industry expertise (*Conglomerate*) shows no significant impact either.

Among the acquirer's features, we find that the market shows a marginal, positive reaction after the passage of SOX, and the market reacts negatively if the acquiring firms are in a high-litigation sector (*Litigation sector*). The market-to-book ratio and the acquirer's size (*Acquirer MV*) present no significant signs.

6.2 Long-term performance: abnormal returns

Abnormal return on assets (ROA)

First, we use the abnormal ROA to investigate firms' post-acquisition performance.

Table 5 panel A: Abnormal return on assets (rROA) in the first year after acquisition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pure stock	-0.011	-0.018	-0.017				
	(0.015)	(0.020)	(0.018)				
Major stock				-0.013	-0.023	-0.012	
				(0.017)	(0.023)	(0.021)	
Mixed deals							-0.006
							(0.015)
Pre-acq AM	0.038***	0.031**		0.039***	0.033**		0.038***
	(0.013)	(0.014)		(0.013)	(0.014)		(0.013)
Pre-acq REM	-0.011		-0.013	-0.011		-0.009	-0.011
	(0.015)		(0.016)	(0.015)		(0.016)	(0.015)
Pure stock and Pre-acq AM		0.018					
		(0.029)					
Pure stock and Pre-acq REM			0.015				
			(0.031)				
Major stock and Pre-acq AM					0.025		
					(0.033)		
Major stock and Pre-acq REM						0.009	
						(0.036)	
Successive deal	-0.036**	-0.036**	-0.038**	-0.036**	-0.037**	-0.038**	-0.036**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Target MV	-0.023***	-0.022***	-0.023***	-0.023***	-0.023***	-0.023***	-0.023***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Premium 1 week	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total assets	0.032***	0.032***	0.032***	0.033***	0.033***	0.033***	0.033***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
MtoB	0.013**	0.014**	0.012*	0.012*	0.012**	0.011*	0.012*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
SOX	-0.056**	-0.058**	-0.055**	-0.055**	-0.056**	-0.055**	-0.055**
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
Litigation sector	0.009	0.008	0.007	0.008	0.007	0.006	0.008
	(0.020)	(0.020)	(0.021)	(0.021)	(0.020)	(0.021)	(0.021)
Conglomerate	-0.011	-0.011	-0.011	-0.010	-0.010	-0.010	-0.010
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Constant	-0.303**	-0.306**	-0.244*	-0.316**	-0.315**	-0.263**	-0.317**
	(0.134)	(0.136)	(0.130)	(0.133)	(0.133)	(0.129)	(0.133)
Industry and year fixed effects controlled							
Adj. R^2	0.008	0.008	0.002	0.008	0.008	0.001	0.007
Observation	1498	1498	1498	1498	1498	1498	1498

Table 5 panel B: Abnormal return on assets (rROA) in the first two years after acquisition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pure stock	-0.023	-0.022	-0.029				
	(0.028)	(0.035)	(0.034)				
Major stock				-0.005	-0.024	0.002	
				(0.026)	(0.030)	(0.031)	
Mixed deals							-0.010
							(0.024)
Pre-acq AM	0.055**	0.053**		0.055**	0.044*		0.055**
	(0.024)	(0.026)		(0.024)	(0.027)		(0.024)
Pre-acq REM	-0.023		-0.022	-0.023		-0.016	-0.024
	(0.026)		(0.027)	(0.026)		(0.028)	(0.026)
Pure stock and Pre-acq AM		-0.002					
		(0.053)					
Pure stock and Pre-acq REM			0.014				
			(0.057)				
Major stock and Pre-acq AM					0.046		
					(0.052)		
Major stock and Pre-acq REM						-0.010	
						(0.058)	
Successive deal	-0.049*	-0.050*	-0.052**	-0.050*	-0.050*	-0.052**	-0.050*
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Target MV	-0.043***	-0.042***	-0.043***	-0.044***	-0.044***	-0.044***	-0.044***
	(0.010)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)
Premium 1 week	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total assets	0.058***	0.057***	0.057***	0.060***	0.059***	0.059***	0.059***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
MtoB	0.019	0.020*	0.018	0.017	0.018*	0.016	0.017
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
SOX	-0.089**	-0.090**	-0.086*	-0.087*	-0.089**	-0.085*	-0.086*
	(0.044)	(0.044)	(0.044)	(0.045)	(0.045)	(0.044)	(0.045)
Litigation sector	0.014	0.013	0.009	0.012	0.010	0.008	0.011
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.037)
Conglomerate	0.006	0.006	0.007	0.006	0.007	0.007	0.007
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Constant	-0.539**	-0.537**	-0.465**	-0.562**	-0.563**	-0.491**	-0.564**
	(0.227)	(0.230)	(0.225)	(0.228)	(0.229)	(0.225)	(0.229)
Industry and year fixed effects controlled							
Adj. R^2	0.017	0.016	0.012	0.016	0.016	0.012	0.016
Observation	1382	1382	1382	1382	1382	1382	1382

Results of cross-sectional determinants of the firm's abnormal return on assets in the first year (Panel A) and in the first two years (Panel B) after acquisition, with ((2)-(3) and (5)-(6)) and without ((1) (4) and (7)), the interaction factors between M&A payment methods and the pre-acquisition EM. The abnormal return is computed by the difference in ROA between the M&A acquiring firm and its matched control firm. **Abnormal Accruals** and **Abnormal R&D (rRD)** are the proxies for **AM** and **REM**[5], respectively. The EM proxies are defined in the same manner as in the previous section. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

[5] We also test the model using rCFO as REM proxy, and we obtain similar results.

Panel A and Panel B present the acquiring firm's abnormal ROA in the first year and in the first two years, respectively. Generally, we find both pure stock and major stock payment acquirers suffer non-significant underperformance (approximately -1.1% to -2.3% for the first year and -2.2% to -2.9% in the first two years) after acquisition.

Moreover, we find that AM behavior before acquisition shows significant, positive impacts. The results provide favorable evidence for the use of AM over a short period for an M&A event, suggesting that the use of AM beforehand mitigates the underperformance after acquisition. The results are robust for two years after acquisition. The interaction between the payment method and pre-acquisition EM shows no additional impacts.

Plus, deal size (*Target MV*) shows significant, negative impacts, suggesting that larger acquisitions are costlier to the acquirer. The deal premium does not influence the firm's post-acquisition ROA, nor does the industry expertise (*Conglomerate*).

Among the acquiring firms' features, we find that factors of the acquiring firm's size have a positive relationship with the firm's abnormal ROA, indicating that as the acquiring firm's size increases, the negative impacts of acquisition decrease. The market-to-book ratio shows a slightly positive impact only in the two-year scenario, and the litigation sector shows no clear impact on the post-acquisition operating performance.

Abnormal stock return

The cumulative returns on the stock market are applied to investigate firms' long-term performance after acquisition. Table 6 Panel A and Panel B observe the link between an acquiring firm's return on the stock market and three groups of related factors (deals, acquiring firm features and control variables) during the first year and in the first two years, respectively.

Table 6 panel A: Abnormal stock returns in the first year after acquisition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pure stock	-0.038	0.030	-0.035				
	(0.040)	(0.049)	(0.047)				
Major stock				0.047	0.013	0.035	
				(0.042)	(0.050)	(0.051)	
Mixed deals							0.068*
							(0.036)
Pre-acq AM	-0.011	0.045		-0.012	-0.029		-0.011
	(0.034)	(0.037)		(0.034)	(0.037)		(0.034)
Pre-acq REM	-0.022		-0.019	-0.020		-0.028	-0.020
	(0.037)		(0.041)	(0.037)		(0.040)	(0.037)
Pure stock and Pre-acq AM		-0.177**					
		(0.077)					
Pure stock and Pre-acq REM			-0.010				
			(0.080)				
Major stock and Pre-acq AM					0.081		
					(0.081)		
Major stock and Pre-acq REM						0.039	
						(0.082)	
Successive deal	0.013	0.012	0.013	0.014	0.013	0.014	0.013
	(0.041)	(0.041)	(0.042)	(0.041)	(0.042)	(0.041)	(0.041)
Target MV	-0.031**	-0.032***	-0.031**	-0.035***	-0.035***	-0.035***	-0.036***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Premium 1 week	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total assets	0.019	0.018	0.019	0.023*	0.023*	0.024*	0.024*
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
MtoB	0.073***	0.073***	0.073***	0.071***	0.072***	0.071***	0.074***
	(0.017)	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
SOX	-0.014	-0.004	-0.014	-0.015	-0.018	-0.017	-0.021
	(0.117)	(0.119)	(0.117)	(0.117)	(0.118)	(0.117)	(0.117)
Litigation sector	-0.029	-0.026	-0.028	-0.029	-0.032	-0.028	-0.025
	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Conglomerate	0.036	0.034	0.036	0.035	0.036	0.035	0.031
	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
Constant	0.104	0.151	0.086	0.067	0.066	0.046	0.088
	(0.286)	(0.285)	(0.282)	(0.283)	(0.281)	(0.277)	(0.282)
Industry and year fixed effects controlled							
Adj. R^2	0.019	0.023	0.019	0.020	0.020	0.020	0.021
Observation	1532	1532	1532	1532	1532	1532	1532

In the first year after acquisition, the results in Panel A suggest that neither the payment method nor the pre-acquisition EM has a significant impact on the long-term market

returns. Moreover, among the deal features and acquirer's characteristics, we observe only that the market-to-book ratio has positive effects and that SOX has a negative impact.

Table 6 panel B: Abnormal stock returns in the first two years after acquisition

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pure stock	-0.155**	-0.116	-0.168**				
	(0.062)	(0.083)	(0.077)				
Major stock				0.125*	0.095	0.165**	
				(0.065)	(0.083)	(0.079)	
Mixed deals							0.212***
							(0.058)
Pre-acq AM	0.014	0.044		0.011	-0.004		0.012
	(0.053)	(0.057)		(0.053)	(0.060)		(0.053)
Pre-acq REM	-0.025		-0.036	-0.020		0.003	-0.018
	(0.055)		(0.058)	(0.054)		(0.060)	(0.054)
Pure stock and Pre-acq AM		-0.100					
		(0.118)					
Pure stock and Pre-acq REM			0.037				
			(0.131)				
Major stock and Pre-acq AM					0.071		
					(0.125)		
Major stock and Pre-acq REM						-0.143	
						(0.131)	
Successive deal	-0.034	-0.034	-0.034	-0.030	-0.031	-0.031	-0.030
	(0.060)	(0.060)	(0.061)	(0.061)	(0.061)	(0.061)	(0.060)
Target MV	-0.050***	-0.051***	-0.050***	-0.062***	-0.062***	-0.061***	-0.067***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Premium 1 week	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Total assets	0.084***	0.083***	0.084***	0.098***	0.098***	0.097***	0.100***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
MtoB	0.203***	0.204***	0.202***	0.195***	0.196***	0.195***	0.203***
	(0.046)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
SOX	-0.116	-0.112	-0.116	-0.113	-0.116	-0.107	-0.135
	(0.135)	(0.137)	(0.135)	(0.139)	(0.140)	(0.140)	(0.138)
Litigation sector	-0.117	-0.116	-0.118	-0.121	-0.124	-0.121	-0.106
	(0.077)	(0.078)	(0.078)	(0.077)	(0.077)	(0.077)	(0.077)
Conglomerate	0.028	0.027	0.028	0.026	0.027	0.024	0.013
	(0.053)	(0.053)	(0.053)	(0.054)	(0.054)	(0.054)	(0.053)
Constant	-0.705	-0.676	-0.675	-0.858*	-0.859*	-0.825*	-0.788*
	(0.445)	(0.448)	(0.429)	(0.446)	(0.447)	(0.424)	(0.445)
Industry and year fixed effects controlled							
Adj. R^2	0.067	0.067	0.067	0.065	0.065	0.065	0.071
Observation	1532	1532	1532	1532	1532	1532	1532

Results of cross-sectional determinants of the firm's abnormal stock returns in the first year (Panel A) and in the first two years (Panel B) after acquisition, with ((2)-(3) and (5)-(6)) and without ((1) (4) and (7)), the interaction factors between M&A payment methods and the pre-acquisition EM. The yearly cumulative stock returns are computed by the monthly returns on the stock market. Abnormal returns are computed by the difference in the yearly stock return between the M&A acquiring firm and its matched control firm. **Abnormal Accruals** and **Abnormal R&D (rRD)** are the proxies for **AM** and **REM**[6], respectively. The EM proxies are defined in the same manner as in the previous section. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

[6] We also test the model using rCFO as an REM proxy, and we obtain similar results.

During the first two years after acquisition, significantly different performance is shown across each payment method of the acquiring firms. Pure stock payment firms suffer a significantly negative market return, while the situation is reversed for major stock and mixed deals acquirers. However, these differences in performance cannot be observed in operating performance.

Moreover, as mentioned in the previous analysis, significant impacts are noted from the pre-acquisition EM on a firm's post-acquisition ROA, while these impacts can no longer be observed in the market return during the same period. The results suggest that the financial market's valuation seems not to follow the same pattern as the firm's operating performance; the market prefers to adjust its evaluation to the sizes of the acquiring and target firms and to adjust the acquiring firm's future growth more to its current performance (*MtoB*). The pre-acquisition management seems to no longer matte, although it exerts a significant impact on the post-acquisition operating performance.

Moderate and high level of EM behaviors

In this part of the analysis, we apply two dummy variables (with the suffixes "modest" and "high") for both AM and REM, which stand for high and modest degrees of EM behaviors, respectively. These new variables allow us to observe separately the effects of high / modest degrees of EM on firms' performance.

Abnormal return on assets (ROA)

Table 5 Panels C and D show these effects on a firm's operating performance during the first year and the first two years after acquisition, respectively.

Table 5 panel C: Abnormal return on assets integrating the degree of EM behaviors

	(1)	(2)	(3)	(4)	(5)	(6)
	The first year after acquisition			The first two years after acquisition		
Pure stock	-0.019			-0.040		
	(0.016)			(0.029)		
Major stock		-0.017			-0.013	
		(0.017)			(0.027)	
Mixed deals			-0.013			-0.022
			(0.014)			(0.024)
Pre-acq AM (modest)	0.042***	0.043***	0.043***	0.065***	0.066***	0.066***
	(0.012)	(0.013)	(0.013)	(0.025)	(0.025)	(0.025)
Pre-acq AM (high)	0.033	0.035	0.035	0.038	0.041	0.042
	(0.025)	(0.025)	(0.025)	(0.044)	(0.044)	(0.044)
Pre-acq REM (modest)	0.003	0.003	0.003	0.006	0.007	0.007
	(0.015)	(0.015)	(0.015)	(0.030)	(0.030)	(0.030)
Pre-acq REM (high)	-0.037	-0.038	-0.038	-0.078**	-0.079**	-0.080**
	(0.027)	(0.027)	(0.027)	(0.037)	(0.037)	(0.037)
Relative size	-0.027***	-0.028***	-0.028***	-0.036***	-0.038***	-0.037***
	(0.009)	(0.009)	(0.009)	(0.014)	(0.014)	(0.014)
Premium 1 week	0.000*	0.000*	0.000*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Total assets	0.013**	0.014***	0.014***	0.025***	0.026***	0.027***
	(0.005)	(0.005)	(0.005)	(0.009)	(0.010)	(0.010)
MtoB	0.010	0.008	0.008	0.016	0.013	0.012
	(0.007)	(0.006)	(0.006)	(0.012)	(0.011)	(0.012)
SOX	-0.069***	-0.068***	-0.067***	-0.118***	-0.115***	-0.113***
	(0.023)	(0.024)	(0.024)	(0.042)	(0.042)	(0.042)
Litigation sector	0.008	0.007	0.006	0.012	0.009	0.007
	(0.021)	(0.021)	(0.021)	(0.038)	(0.038)	(0.038)
Conglomerate	-0.017	-0.017	-0.016	-0.005	-0.005	-0.003
	(0.014)	(0.014)	(0.014)	(0.026)	(0.026)	(0.026)
Constant	-0.312**	-0.337**	-0.339**	-0.614***	-0.663***	-0.667***
	(0.135)	(0.134)	(0.134)	(0.236)	(0.238)	(0.238)
Industry and year fixed effect controlled						
Adj. R^2	-0.004	-0.004	-0.005	0.002	0.000	0.001
Observation	1498	1498	1498	1382	1382	1382

Results of cross-sectional determinants of the firm's abnormal return on assets in the first year ((1)-(3)) and first two years ((4)-(6)) after acquisition. The abnormal return is computed by the difference in ROA between the M&A acquiring firm and its matched control firm. **Abnormal Accruals** and **Abnormal R&D (rRD)** are the proxies for **AM** and **REM**[7], respectively. The dummy variables "**Pre-acq AM (modest)**" and "**Pre-acq RM (modest)**" denote a modest degree (the value of the respective EM proxy is between the industry's median and the 90th percentile) of EM behaviors. The dummy variables "**Pre-acq AM (high)**" and "**Pre-acq RM (high)**" denote high degrees of EM behaviors (the value of respected EM proxy is beyond the 90th percentile of the industry level). Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

The result conveys two messages. First, the modest degree of the EM indicators shows positive effects on a firm's post-acquisition performance. REM (*Pre-acq RM (modest)*) shows a non-significant, negative effect in the first year and a non-significant, positive sign in the first two years. The effect from AM (*Pre-acq AM (modest)*) is very significant and positive during the first two years after acquisition. The results suggest that a modest degree of EM behavior is good for a firm's future performance.

Second, the opposite effects (negative effects) are noted for high degrees of EM behaviors. The results indicate a significant, negative (marginally significant in the first year and significant at 1% in the first two years) effect for these REM behaviors, while these effects were not revealed in the previous analysis. For high degrees of AM behaviors, a negative and non-significant impact is found on a firm's future performance.

In addition, the other variables in the regression model show similar signs as in the previous section (Table 5 Panel A). The post-acquisition operating performance is positively related to the size of the acquiring firms and is negatively linked to the choice of the stock payment, the relative size of the target firm and the passage of the SOX.

[7] We also test the model using rCFO as the REM proxy, and we obtain similar results.

Abnormal stock return

Table 6 Panels C shows the impacts of modest and high degrees of EM on a firm's performance on the stock market in the first year and the first two years after acquisition.

Table 6 panel C: Abnormal stock returns integrating the degree of EM behaviors

	(1)	(2)	(3)	(4)	(5)	(6)
	The first year after acquisition			The first two years after acquisition		
Pure stock	-0.019			-0.186***		
	(0.016)			(0.061)		
Major stock		0.038			0.107	
		(0.042)			(0.066)	
Mixed payment			0.056			0.188***
			(0.036)			(0.058)
Pre-acq AM (modest)	0.042***	0.030	0.031	0.034	0.032	0.034
	(0.012)	(0.036)	(0.036)	(0.055)	(0.055)	(0.055)
Pre-acq AM (high)	0.033	-0.102	-0.102	-0.009	-0.005	-0.008
	(0.025)	(0.062)	(0.062)	(0.091)	(0.091)	(0.091)
Pre-acq REM (modest)	0.003	-0.022	-0.022	-0.045	-0.034	-0.035
	(0.015)	(0.040)	(0.040)	(0.058)	(0.058)	(0.058)
Pre-acq REM (high)	-0.037	-0.008	-0.005	0.029	0.023	0.034
	(0.027)	(0.057)	(0.057)	(0.092)	(0.092)	(0.092)
Relative size	-0.027***	0.039	0.037	0.090	0.082	0.072
	(0.009)	(0.042)	(0.042)	(0.092)	(0.093)	(0.091)
Premium 1 week	0.000*	0.000	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Total Assets	0.013**	0.002	0.002	0.056***	0.065***	0.063***
	(0.005)	(0.011)	(0.011)	(0.017)	(0.018)	(0.018)
MtoB	0.010	0.070***	0.072***	0.209***	0.197***	0.204***
	(0.007)	(0.018)	(0.018)	(0.048)	(0.048)	(0.048)
SOX	-0.069***	-0.033	-0.040	-0.148	-0.146	-0.169
	(0.023)	(0.121)	(0.121)	(0.135)	(0.139)	(0.139)
Litigation sector	0.008	-0.019	-0.016	-0.120	-0.125	-0.112
	(0.021)	(0.053)	(0.053)	(0.079)	(0.079)	(0.079)
Conglomerate	-0.017	0.022	0.019	0.010	0.005	-0.008
	(0.014)	(0.034)	(0.034)	(0.052)	(0.052)	(0.052)
Constant	-0.312**	-0.182	-0.168	-1.077**	-1.337***	-1.287***
	(0.135)	(0.270)	(0.269)	(0.426)	(0.431)	(0.430)
Industry and year fixed effect controlled						
Adj. R^2	-0.004	0.018	0.019	0.065	0.060	0.065
Observation	1498	1532	1532	1532	1532	1532

Results of cross-sectional determinants of the firm's abnormal stock return in the first year ((1)-(3)) and in the first two years ((4)-(6)) after acquisition. The yearly cumulative stock returns are computed by the monthly returns on the stock market. Abnormal returns are computed by the difference in the yearly stock return between the M&A acquiring firm and its matched control firm. **Abnormal Accruals** and **Abnormal R&D (rRD)** are the proxies for **AM** and **REM**[8], respectively. The dummy variables "**Pre-acq AM (modest)**" and "**Pre-acq RM (modest)**" denote a modest degree (the value of the respective EM proxy is between the industry's median and the 90th percentile) of EM behaviors. The dummy variables "**Pre-acq AM (high)**" and "**Pre-acq RM (high)**" denote a high degree of EM behaviors (the value of the respective EM proxy is beyond the 90th percentile of the industry level). Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

[8] We also test the model using rCFO as an REM proxy, and we obtain similar results.

A significant sign from Pre-acquisition AM is noted for pure stock acquirers, however, this sign is not significant in the following two years. And no other significant sign can be observed among other payment method acquirers.

For REM, its impact on the stock market seems more ambiguous. Its modest level shows no significant effect, while its high level illustrates a positive sign in the first year and a negative sign in the first two years after acquisition. In addition, similar signs are noted for the other variables, as in Table 6 Panel A.

This section observes the effect of EM on a firm's post-acquisition performance in two degrees. The result indicate very different effects on the operating performance of high and modest degrees of EM behaviors for both AM and REM. In contrast, we do not find similar effects on stock market performance. This finding also suggests that the financial market is ineffective in detecting EM behaviors, or it could be unaware of EM behaviors, although these types of behaviors have significant impacts on a firm's future performance.

7. Conclusion

This paper investigates public (pure and major) stock payment acquirers' pre-acquisition EM (AM and REM) strategies during the pre- and post-SOX periods and their impacts on a firm's post-acquisition performance. The principal findings are as follows.

First, AM is the main EM method for stock payment acquiring firms, even after the passage of SOX. This paper first shows "major-stock" acquirers' pre-acquisition AM strategy.

Second, REM is also likely to be used by stock payment firms. Among the four REM methods, pure stock payment acquirers prefer to manage through discretionary expenses, and major stock payment firms prefer reducing R&D expenses.

Plus, a substitution relationship is noted between the AM and REM methods, and this substitution effect is related to the M&A payment method, the recurrence of acquisition, the size of the target firm, whether the acquiring firm is reviewed by a "Big 8" auditor and the length of the auditor's tenure.

Fourth, in the short-term performance analysis, the results imply that the financial market appears ineffective in detecting the acquirer's pre-acquisition EM behaviors, and it offers a "unified" reaction to an M&A deal according to its payment method. In addition, the market capitalization of both target and acquiring firms and whether the acquirers are in a high-litigation industry sector have significant impacts on the market's reaction.

Additionally, in the long-term operating performance, generally stock payment acquirers suffer from non-significant underperformance after acquisition. The result indicate that pre-acquisition AM has significant effects in mitigating this underperformance, while this effect exists only for AM to a moderate degree. The results also suggest that moderate pre-acquisition REM will not harm a firm's performance, while a high level of this behavior has a negative impact. Plus, we find that the deal size, the firm size of the target and acquirer, the market-to-book ratio and the passage of SOX have significant impacts on firms' post-acquisition performance.

Moreover, we investigate the reaction of the financial market in the long term. A close link is noted of the stock market performance with the acquiring firm's market-to-book

ratio and with the firm size of both the acquirer and target. Although the pre-acquisition EM has significant impacts on the operating performance, this impact is not captured by the financial market. The above results suggest that the market prefers a firm's future growth to its current performance and an "unawareness" of acquiring firm's pre-acquisition EM behaviors: it neglects these EM behaviors, or it is not efficient in detecting them.

In addition, we separate the mixed payment acquirers into two groups according to their main payment methods. We find that "major-stock" payment acquirers have particular EM strategies during the acquisition years. These facts cannot be observed if they are not split from the original sample of mixed payment acquirers. This paper also contributes to the literature and encourages future research into mixed payment M&A deals.

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9. Appendix

Variables descriptions and data sources.

Variable name	Notation	Descriptions and data sources
Abnormal R&D expenses	rRD	Observing firm is suspect of REM through this method if an abnormal reduction in R&D is beyond its industry median level (Compustat)
Abnormal operating cash flow	rCFO	Observing firm is suspect of REM through this method if an abnormal reduction in CFO is beyond its industry median level (Compustat)
Abnormal discretionary expenses	rDiseXP	Observing firm is suspect of REM through this method if an abnormal reduction in discretionary expenses is beyond its industry median level (Compustat)
Abnormal cost of production	rProd	Observing firm is suspect of REM through this method if an abnormal increase in production cost is beyond its industry median level (Compustat)
Abnormal Accruals	AA	Observing firm is suspect of AM if AA is beyond its industry median level (Compustat)
Pre-acquisition AM suspected	Pre-acq AM	A dummy coded 1 if the observing firm is suspect of AM and 0 otherwise
Pre-acquisition REM suspected	Pre-acq REM	A dummy coded 1 if the observing firm is suspect of REM and 0 otherwise
Pre-acquisition EM suspected (EM)	Pre-acq EM (EM)	A dummy coded 1 if either "Pre-acq AM" or "Pre-acq REM" takes value of 1 and 0 otherwise
Modest degree of AM behavior	Pre-acq AM (modest)	A dummy coded 1 if AA is beyond its industry's median and below 90 percentile, 0 otherwise
High degree of AM behavior	Pre-acq AM (high)	A dummy coded 1 if AA is beyond its industry's 90 percentile and 0 otherwise
Modest degree of REM behavior	Pre-acq REM (modest)	A dummy coded 1 if value of the respected REM proxy is beyond its industry's median and below the 90 percentile, 0 otherwise
High degree of REM behavior	Pre-acq REM (high)	A dummy coded 1 if value of the respected REM proxy is beyond its industry's 90 percentile and 0 otherwise
Pure stock payment M&A deals	Pure stock	A dummy coded 1 if acquirer uses pure stock exchange and 0 otherwise
Major stock payment M&A deals	Major stock	A dummy coded 1 if the stock exchange proportion between 51% and 99%) and 0 otherwise
Mixed payment M&A deals	Mixed deals	A dummy coded 1 if acquisition has both cash payment and stock exchange
Interaction between dummy "Pure stock" and "Pre-acq AM"	Pure Stock & Pre-acq AM	The interaction effect between two dummy variables: "Pure stock" and "Pre-acq AM"
Interaction between dummy "Pure stock" and "Pre-acq REM"	Pure Stock & Pre-acq REM	The interaction effect between two dummy variables: "Pure stock" and "Pre-acq REM

Interaction between dummy "Major stock" and "Pre-acq AM"	Major Stock & Pre-acq AM	The interaction effect between two dummy variables: "Major stock" and "Pre-acq AM"
Interaction between dummy "Major stock" and "Pre-acq REM"	Major Stock & Pre-acq REM	The interaction effect between two dummy variables: "Major stock" and "Pre-acq REM"
Habitual beater	Hab_Beater	Number of the times that firm's quarterly actual earnings per share (EPS) meets or exceeds the analyst forecast consensus during the previous 4 quarters (I.B.E.S)
Market capitalization	Mkt_Capt	The log of acquiring firm's market capitalization (CRSP)
Cash level	Cash Level	The value of cash and cash equivalents, scaled by the total assets (Compustat)
Leverage	Leverage	Leverage is computed as total assets divided by total assets minus total liabilities (Compustat)
Market to book ration	MtoB	Firm's market-to-book ratio (CRSP and Compustat)
Relative size of acquisition	Relative Size	Relative size of acquisition is calculated as the deal value scaled by the acquiring firm's market value (SDC and CRSP)
Conglomerate	Conglomerate	A dummy coded 1 if the target firm is in the same industry sector as its acquirers (2-digit SIC code) and 0 otherwise (Compustat)
Big 8 auditor	Big8	A dummy coded 1 if acquiring firm is reviewed by a Big 8 auditor and 0 otherwise (Compustat)
Auditor's Tenure	Auditor's Tenure	Length (number of years) of auditor's tenure (Compustat)
Acquirer's Total Assets	Total Assets	The log of acquiring firm's total assets (CRSP)
Acquirer Market value	Acquirer MV	The log of acquiring firm's market value (CRSP)
Target Market value	Target MV	The log of target firm's market value (CRSP)
Litigation Sector	Litigation Sector	A dummy coded 1 if acquiring firm is in a high-litigation industry (SIC code: 2833-2836, 3570-3577, 3600-3674 and 8731-8734) and 0 otherwise (Compustat)
The passage of SOX	SOX	A dummy coded 1 if the observing year is after 2002 and 0 otherwise (Compustat)
Successive deal	Successive deal	A dummy coded 1 if acquirer has at least one acquisition during three years before the observing M&A deal (SDC)
Acquisition's stock premium in 1 week	Premium 1 week	The amount received in excess of par value of common stock one week prior to deal announcement (SDC)

CHAPITRE 3: ACQUIRING FIRMS' EARNINGS MANAGEMENT STRATEGIES AROUND MERGERS AND ACQUISITIONS

ABSTRACT

This study investigates acquiring firms' earnings management (EM) strategies around mergers and acquisition (M&A) in the US market and analyzes firm's post-acquisition performance. Acquirers are shown to use both accruals management (AM) and real earnings management (REM), both prior to and after acquisition. The EM behaviors are not exclusive to firms that employ stock-for-stock payments; firms that use 100% cash payments or mixed cash and stock payments also manage their earnings during the years around acquisition. We show that there exist some complementary effects between REM and AM. Moreover, a subsample analysis on a successive acquisition deals indicates the AM strategy is less likely to be employed by the repetitive acquirers. However, the REM involved EM strategies are very likely to be applied, which is similar to the non-successive deal scenario. Finally, the results suggest that the pre-acquisition EM has (positive) negative effect on the (non-)repetitive acquirer's post-acquisition performance.

Keywords: merger and acquisitions, earnings management, accruals management, real earnings management, method of payment

JEL codes: G14 G34 M41

1. Introduction

In this study, we analyze acquiring firms' earnings management (EM) patterns during pre- and post-acquisition years. Prior studies indicate that stock-for-stock acquiring firms are likely to manage earnings prior to the acquisition ((Erickson and Wang (1996), Louis (2004)). Although prior studies only observed acquiring firms' EM strategies using accruals management (AM) measures, an alternative EM choice, acquiring firms' real EM (REM)[9] behaviors around the acquisition, remains uninvestigated.

In addition to the 100% cash and stock-for-stock types of payment, the mixed (cash and stock-exchange) payment is also an important method of payment for acquisitions (approximately 30% of merger and acquisition, hereafter M&A, deals are conducted using this method). This method of payment for M&As has not been analyzed in prior studies regarding EM.

The primary purpose of this study is to observe acquiring firms' EM patterns in the M&A context and determine whether the EM pattern during both pre- and post-acquisition periods is related to the method of payment. This study also analyzes how these EM strategies affect a firm's performance after an acquisition.

Our study provides evidence for the use of REM around the acquisition by acquiring firms. The results also indicate a close link between the method of payment for acquisitions and the acquiring firm's EM patterns. Different pre-acquisition EM patterns lead to variations in post-acquisition performance.

Our analysis focuses on four aspects: first, we investigate whether acquiring firms engage in EM behavior during the years before and after an acquisition, not only for AM but also for REM behavior. Recent studies have proposed the use of REM, particularly after the Sarbanes Oxley Act (Cohen, Dey et al. (2005)). In addition, prior studies indicate that different EM strategies are used around Second Equity Offering (SEO) operations and for daily activities (no-event scenario) (Zang (2012)). In the context of M&As, EM strategies

[9] In certain studies, the phrase real activity management (RAM) is employed instead of REM.

are likely to be used by an acquiring firm's manager to address overstatement and (or) cash flow smoothing.

Second, we observe whether acquiring firms use special EM strategies during the M&A years and whether the EM strategies are related to the M&A payment method. Different methods of payment lead to very different impacts on a firm's financial statement and also affect the EM choice. Major cash payment acquisitions significantly impact the cash flow statement and may lead to the use of REM, which can help an acquiring firm obtain more cash. This situation is not likely to occur for major stock payment acquirers. Conversely, AM for cash payment acquirers is not attractive because AM does not generate real cash flows. We expect that acquirers that use different methods of payment also use different combinations (i.e., strategies) of EM methods.

Prior studies indicate that AM and REM have different impacts on a firm's future performance (Kothari, Mizik et al. (2016), Cohen and Zarowin (2010), Zang (2012)). Prior studies that analyze EM and M&As (Louis (2004)) only observe the impact on stock performance in the short term. The third purpose of this paper is to investigate the impacts of different EM strategies on firms' post-acquisition performance, which has not been observed in prior studies.

Furthermore, acquiring firms may not manage their earnings before or after acquisitions. When an acquisition significantly affects reported earnings or (and) a firm's cash flow, the acquiring firm manager may be strongly motivated to use EM for financial reports or (and) cash flow smoothing. We suggest that firms engage in EM behaviors after acquisitions.

Based on the previous suggestion, this study analyzes whether the choice of EM method prior to the acquisition is related to the EM choice after the acquisition. This study analyzes firms that used AM (or REM) prior to an acquisition to determine if they were likely to continue the same EM strategy after acquisition or switch to another strategy. This issue has not been investigated in prior studies.

The "continuity effect" may not be the same for AM and REM. In addition, this effect may be linked to the method of payment used for the acquisition. Prior studies (Louis (2004)) indicate that stock-for-stock acquirers are likely to use AM prior to an acquisition but not

afterwards, which implies a weak continuity of AM among these stock-for-stock acquirers. However, the continuity effect for REM behaviors remains unexplored for cash and mixed payment acquirers.

We expect that the continuity effect is strongly related to REM behaviors and this effect is likely to be found among cash payment acquiring firms. Cash payment acquirers may prefer REM to AM prior to acquisition because REM results in "real cash" and is less likely to be detected by auditors and regulators (Cohen and Zarowin (2010)). After a significant cash payment, post-acquisition REM is likely to be used if the acquiring firm meets financial constraints because REM generates "real cash". If a firms' cash flow statement become volatile, the post-acquisition AM and (or) REM may be used to smooth earnings. Compared to cash payment firms, this scenario is less likely to occur for stock payment firms.

The final purpose of this paper is to observe the impact of different EM strategies on acquiring firm's post-acquisition performance.

To test our hypotheses, we employ abnormal accruals (AAs) that were estimated using a modified Jones model augmented for net income (Kothari et al., 2005) to capture AM. We use abnormal reductions in research and development (R&D) expenses (Kothari, Mizik et al. (2016)) as a proxy for REM. Based on average industry levels, we identify acquirers that most likely use AM or RM during the years around the acquisition. We compare the portion of the acquirers that may use EM to a sample that includes all public firms in the market and observe whether the two samples exhibit different behavior.

The model used in Kothari, Mizik et al. (2016) observes SEO firms' EM choices and their influence through three independent indicators: (1) AM (measured by AAs), (2) REM (measured by abnormal R&D) and (3) performance (measured by abnormal ROA). We adopt this model because it also fits the scenario of M&As for the following reasons: (1) AM is likely to be used to inflate earnings prior to an acquisition; (2) when the acquisition significantly affects a firm's cash flow, acquiring firms may opportunistically sacrifice R&D expenses for various reasons, such as a need for cash, cash flow smoothing and increased earnings; (3) these indicators of AM (high AAs) and REM (abnormal reduction in R&D) are related to a manager's overstatement of earnings. This study analyzes EM

strategies that are used by M&A acquirers and their impact on a firm's future performance through studying eight groups according to the three indicators.

We use two abnormal ROA measures to analyze an acquiring firm's performance during post-acquisition years. The first measure is based on a normal return for the same firm during the non-acquisition years. The second measure is computed by using a match sample model in alignment with Barber and Lyon (1997). These two measurements for computing abnormal returns alleviate the sample selection problem for the EM strategy based on an abnormal return analysis because the EM strategy groups defined are related to performance.

Our study makes four primary contributions to the literature. First, we demonstrate that REM behaviors occur during pre- and post-acquisition periods and are likely to be exhibited by 100% cash and mixed payment acquirers. In addition, AM is likely to occur among stock payment firms, consistent with the results of prior studies.

Second, our study provides an exhaustive review of acquiring firms' EM strategies during the M&A years by analyzing an M&A sample for all methods of payment (100% cash, 100% stock and mixed payment) and also analyzing a subsample of non-successive & successive acquisitions. A close relationship was determined to exist between EM strategies and M&A payment methods: Stock-for-stock payment acquirers prefer an AM strategy prior to an acquisition and no EM after the acquisition. Cash payment acquirers prefer only REM strategies prior to an acquisition, and a combination of AM and REM strategies are likely to be used during the post-acquisition period. Mixed payment acquirers have no significant incentive to employ a particular type of EM strategy.

The results of this study also indicate a complementary effect between the two EM methods. Prior studies have not discussed these effects in the M&A context.

Third, we examine the impact of the payment method and the different EM strategies on firms' post-acquisition performance. Our results suggest that EM behavior of non-repetitive acquirer during the pre-acquisition period did not "harm" the firm's post-acquisition performance. In addition, these pre-acquisition EM firms exhibited significantly better performance than the no-pre-acquisition-EM firms during the post-acquisition period.

Finally, in addition to a sample of non-successive M&As (i.e., no other acquisitions occurred during a five-year period around the observed M&A), we analyzed a sample of successive M&A deals. We found that 100% stock and mixed payment successive acquisition acquirers are less likely to use EM than the non-successive ones, while 100% cash repetitive acquiring firms are likely to use REM before acquisition and both AM and REM after acquisition, as are the non-successive ones. These repetitive acquirers exhibit a performance similar to that of the non-repetitive acquirers before acquisition, while underperformance is more serious after acquisition. In this situation, the pre-acquisition EM-engaged firms demonstrate more negative performance than those in a non-successive scenario. Result reminds that the side effect of EM behaviors should not be neglected, especially for the REM involved EM strategies.

The remainder of paper is organized as follows: Section 2 reviews related studies. Sections 3 and 4 develop the hypothesis and the methodology and describe the data. An empirical analysis of the impacts of the payment method on EM strategy is presented in Section 5. Section 6 and section 7 analyze the continuity effect of EM and acquiring firms' post-acquisition performance, respectively. Section 8 survey the EM strategy and the post-acquisition performance for the repetitive acquiring firms. Robustness checks are discussed in Section 9 and Section 10 provides the conclusions.

2. Related literature and hypothesis development

2.1 EM and M&As

Erickson and Wang (1996) examine unexpected accruals prior to acquisitions by analyzing M&A deals from 1985 to 1990. These scholars suggest that firms use EM to increase stock prices and reduce their costs; the degree of EM is positive in alignment with the deal's relative size.

Using data on M&As between 1992 and 2000, Louis (2004) also observes that stock-for-stock acquirers are likely to use AM to increase the stock price prior to an acquisition.

Prior studies provide important information regarding two aspects of this topic. First, they support theory and provide evidence only for stock-for-stock M&A deal acquirers that have an incentive to use AM during and prior to M&A years.

Second, the choice to use the AM or/and RM strategies differs according to the payment method that is used for the acquisition. To the best of our knowledge, there is no evidence for acquirers that use other payment methods, nor is there evidence for the use of RM strategies during the acquisition period.

However, for an M&A deal that includes a significant cash payment, the acquiring firm may have an incentive to engage in EM strategies prior to and (or) after the deal to mitigate the large amount of cash outflow during the year of the acquisition. RM can complete this task by reducing R&D expenses and decreasing administration expenditures.

Furthermore, after merging with the target firm, the acquiring firm's performance may be more susceptible to underperformance during the period immediately after the acquisition. The acquiring firm's manager may be motivated to engage in EM strategies to increase earnings to steady its return rate and protect their reputation.

Based on results from prior studies and our speculation, we propose the following two hypotheses:

Hypothesis 1: Both AM and RM behavior occur during years around an acquisition.

Hypothesis 2: During the acquisition period, the EM strategy employed by the acquiring firm is related to the M&A payment method.

2.2 EM and performance after an acquisition

Most prior studies suggest that EM strategies lead to negative effects on a firm's performance after a M&A. Louis (2004) determined that stock exchange payment M&A acquirers engaged in AM strategies prior to the M&A and firms suffer negative market reactions for three days around the M&A announcement. EM was not anticipated by analysts during the month after the deal. In addition, this Louis (2004) indicates that these underperformances during post-acquisition periods are partly due to reversal effects of the price effects of EM prior to the deal.

Cohen and Zarowin (2010) observed the seasoned equity offering (SEO) context and noted that both AM and REM have negative effects on firms' subsequent operating performance. The effect of RM seems more severe. Therefore, our third hypothesis is as follows:

Hypothesis 3: EM impacts firms' stock performance during the post-acquisition period, and the impact differs according to the use of different EM strategies or the use of different payment methods.

2.3 Trade-off strategies of EM in the SEO context or during the "normal" period

Kothari, Mizik et al. (2016) explores the trade-off strategies of EM during the years around SEO deals. These scholars use an abnormal reduction in R&D expenses as a proxy to detect REM and AAs and an indicator of AM. Kothari, Mizik et al. (2016) investigate the impacts of different EM trade-off strategies by analyzing different EM strategies subsamples. Zang (2012) defines the AM using AAs and uses three RM proxies in alignment with Roychowdhury (2006), who observed a firm's EM trade-off strategy by analyzing the related costs.

This study analyzes EM trade-off strategies in the M&A context. We use Kothari's method because our goal is to observe the impacts of different EM strategies, similar to Kothari, Mizik et al. (2016). This model also fits the scenario of M&As because similar overstate purpose can also be found in the M&A scenario as in the SEO context: (1) AM is likely to be used to inflate earnings prior to an acquisition (Erickson and Wang (1996); Louis (2004)); (2) when the acquisition significantly affects a firm's cash flow, the acquiring firm may opportunistically sacrifice R&D expenses for various reasons, such as a need for cash, cash flow smoothing and increased earnings. In addition, M&A deals have an important feature that SEO deals do not have: a different payment method. The acquisition payment may be related to the firm's EM decision, which makes more sense for the EM strategy analysis.

3. Methodology

3.1 Measuring RM

Prior research provides many methods to measure a firm's REM activities (Graham Harvey and Rajgopal (2005), Roychowdhury (2006) and Kothari, Mizik et al. (2016)). Consistent with Kothari, Mizik et al. (2016), we measure the acquiring firm's REM behaviors in terms of abnormal reductions in R&D expenses.

Investing in R&D contributes to a firm's future growth from the "inside". In contrast, acquisition provides a source of firm growth from the "outside". When there are limited resources, the manager of an acquiring firm may be motivated to opportunistically reduce R&D expenses during the years around an acquisition to ensure success of the acquisition.

Reducing R&D expenses results in increased earnings. In addition, a reduction in R&D expenses can also increase a firm's profitability and cash flow from operating activities (CFO) (Roychowdhury (2006)). Reducing R&D expenses may be very attractive for a firm that recently paid a large expense, such as a major M&A that used a cash payment. By reducing R&D expenses, a firm can not only increase earnings and improve profitability but also increase the confidence of stakeholders and enhance the manager's reputation.

The R&D expenditure's normal level is predicted using a first-order autoregressive panel data model that is calculated as follows:

$$\mathrm{R\&D}_{it} = \alpha_{rd\ i} + \Phi_{rd} * R\&D_{it-1} + \gamma_{sales} * Sales_{it-1} + \sum_{\tau-1}^{T} V_t * Time(\tau) + \varepsilon_{rd\ it} \quad (1)$$

where $\mathrm{R\&D}_{it}$ represents the value of size-adjusted (scaled by total assets during the year, which is the same for other size adjusted variables) R&D expenses for firm i during year t and $R\&D_{it-1}$ represents the year lagged value. $Time(\tau)$ is a dummy variable for which 1 stands for the year and 0 for other cases.

Φ_{rd} is the regressive coefficient for the persistence of R&D expenses. $\alpha_{rd\ i}$ represents a firm-specific constant coefficient for the firm specific effects; these effects can be managed by using the fixed-effects instrumental variable estimation with an

autoregressive coefficient Φ_{rd} and a lagged sales coefficient, γ_{sales}, in alignment with Anderson and Hsiao (1982).

3.2 Measuring AM

We use two methods to estimate AAs: the modified Jones model augmented for net income (Kothari, Leone et al. (2005)) and the modified Jones model (Jones (1991)). The first method is used in the primary analysis, and the second model is used for a robustness check.

The actual total accruals are computed as follows:

$$TA_{it} = (\Delta CA_t - \Delta Liab_t - \Delta Cash_t + \Delta STDebt_t - DepAm_t)/\ \text{Assets}_{t-1} \qquad (2)$$

CA_t, $Liab_t$, $Cash_t$, $STDebt_t$, $DepAm_t$ denote the firm's current assets, current liabilities, cash, short-term debt and depreciation and amortization expenses for year t, respectively.

We input the actual total accruals in the following equation to estimate the normal level of a firm's accruals:

$$TA_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 \Delta Sales_{it} + \beta_3 PPE_{it} + \beta_4 NetIncome_{it} + \upsilon_{it} \qquad (3)$$

where $\Delta Sales_{it}$, PPE_{it}, $NetIncome_{it}$ represent firm i's change in net sales in year t scaled by lagged total assets; net property, plant, and equipment in year t scaled by lagged total assets; and net income in year t scaled by lagged total assets, respectively.

We capture the values of β_0, β_1, β_2, $\beta_3$and β_4 using a cross sectional linear regression for each year and a two-digit Standard Industrial Classification (SIC) code with a minimum of 10 observations for each group.

Finally, the AAs value are calculated as the difference between the actual total accruals and its predicted value.

3.3 Measuring Earnings Surprises

Following Kothari, Mizik et al. (2016), we analyze earnings surprises for the sample using logic that is similar to the first R&D model.

$$\mathrm{ROA}_{it} = \alpha_{roa\ i} + \Phi_{roa} * ROA_{it-1} + \sum_{\tau-1}^{T} V_t * Time(\tau) + \varepsilon_{roa\ it} \qquad (4)$$

where ROA_{it} and ROA_{it-1} are the size-adjusted values of the operating income before depreciation in the current year and lagged years. To ensure a universal variable for all firms as in Kothari, Mizik et al. (2016), the ROA firm-year's data are approximated for the entire sample panel regression model and adjusted by firm-specific and time period-specific effects (Arellano (2003) and Kothari, Mizik et al. (2016)).

3.4 Firms suspected of EM

After obtaining the values for AM, RM and ES from the models mentioned above, we are able to regroup the observations into 8 different EM strategy groups according to their sign (positive or negative).

The EM strategies are summarized in Table 1:

Table 1: EM strategy (groups)

		AA > 0	**AA < 0**
rROA > 0	rRD > 0	**Group 1** "OnlyAM"	**Group 2** "EM-free"
	rRD < 0	**Group 3** "AM&REM"	**Group 4** "OnlyREM"
rROA < 0	rRD > 0	**Group 5** "Low suspicion of EM 1"	**Group 6** "Low suspicion of EM 2"
	rRD < 0	**Group 7** "Low suspicion of EM 3"	**Group 8** "Low suspicion of EM 4"

AA denotes abnormal accruals, positive AA indicates the sign of AM, rRD denotes an abnormal deduction in R&D expense, negative rRD indicates the sign of RM and rROA denotes an earnings surprise. A firm with positive rROA is more likely to engage in EM.

Groups 1 through 4 include firms that have positive rROA (positive abnormal returns), which indicates that they are likely to meet the overstatement condition. Groups 1, 3 and 4 have positive abnormal returns and are suspected of at least one of the EM behaviors. Because the pre-acquisition EM behaviors are linked with overstatements, these firms are the primary research objects in the following analysis.

The first group is the OnlyAM group, which includes firms with positive AA and negative rRD. Firms in Group 3 are likely to use both two methods of EM: AM&REM (using both AM and RM during the observed year). Group 4 is the OnlyREM group (firms only use REM during the observed year); firms in this group reported an abnormal reduction in R&D expenses (rRD) and a negative AA.

Group 2 is less likely to engage in EM because it includes firms that have a positive rRD and negative AA. In addition, this group reported over performance, which refers to an "EM-free" group that reported good performance prior to the acquisition.

Groups 5, 6, 7 and 8 exhibited indications of REM and/or AM. However, these firms reported underperformance prior to the acquisition. The motivation for using and engaging in EM is less for these groups compared with the positive-rROA groups. We report the results for these four groups, which can also be referred to as "Low suspicion of EM groups", and they are used as control groups for groups 1 through 4.

We investigate the trade-off strategies for M&A firms during acquisitions by observing the distribution of M&A firms in different groups for three years prior to and after the acquisition by comparing the number and percentage of firms in each EM group.

3.5 Measuring post-acquisition performance: abnormal stock returns

We analyze the M&A firms' abnormal returns for the three years before and after the deal. An abnormal stock return is referred to as the "actual return" minus the "normal return". We test whether the annual abnormal return is equal to zero by group and by EM strategy group.

Two methods are used to define the "normal return": the first method uses the acquiring firms' average return during the "non-acquisition" period; this period is defined as years for which there were no acquisitions during the observing year and for three years before and after the M&A. This method requires that each M&A firm reports earnings for a minimum of three "non-acquisition" years[10].

The second method uses a matching sample model in alignment with Barber and Lyon (1997) and Kothari, Mizik et al. (2016). For each M&A firm, we match a control firm-year (which is not involved in an M&A deal during the observation year and also during the 3 years before and after) by identifying a firm of a similar size and book-to-market ratio (BtoM). Barber and Lyon (1997) provides evidence for the robustness of this matching mechanism.

The matching process includes two steps: first, we set a range from 70% to 130% of the market value of equity for each M&A firm-year. Then, we select the closest BtoM ratio firm-year with the same 2-digit SIC code for the control firm. The closest BtoM ratio of the control firm should be in the range of 50% to 150% compared to its M&A firm-year. If these conditions are not satisfied, we regard the control firm as unavailable and treat it as a missing observation. This method of matching decreased the number of firms in the control sample but improved the matching quality. Although the number in the final control sample was not highly affected, we obtained 80.9% success in matching among all the M&A firm-years.

For the second method, we checked acquiring firms' abnormal returns by yearly abnormal returns for three years and using cumulative abnormal annual returns. We sought to determine different abnormal returns for different EM strategy groups or for the different M&A payment method groups.

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[10] We also test for more than 5 years and 7 years in the "non-acquisition" years to compute the "Normal Return" and obtained very similar results.

4. Data and descriptive statistics

3.1 Sample description

We use three sources of data to obtain the necessary information. We collected M&A data from 1986 to 2013 from the Thompson's Securities Data Corporation (SDC) database. An M&A deal was included in the sample if it satisfied the following conditions:

- Domestic deals
- Public acquisitions
- Both acquirers and targets are US companies
- The deal was successfully completed
- The minimum size is 1 million US dollars
- The acquirer reports the necessary data to the CRSP/Compustat in Wharton Research Data Services (WRDS) to perform the estimation models.

The firms' accounting, financial information and stock return information were obtained from the CRSP/Compustat Merged annual data and CRSP Monthly Stock File from 1982 to 2013.

3.2 Data regarding M&A deals

This analysis used firm-year data. When a firm participated in several M&A deals during the same year and used the same method of payment for these deals, we aggregated the values of the deals into a single value. When the firm used several methods of payment for these deals, we retained the largest deal if its size was at least 3 times larger than the size of the other deals. Otherwise, the data were discarded.

We obtained a total number of 6362 M&A deals from 1986 to 2013. The agriculture, mining and financial sectors were excluded and 2796 deals remained.

A 7-year-window[11] (from year -3 to year +3) around the year of the M&A announcement (as year 0) is used to observe the acquiring firms' EM behaviors. During this 7-year-window, we focus on the pre-acquisition period (from year -3 to -1) and post-acquisition period (from year 1 to 3) rather than "year 0" because earnings information for that year is very likely to be polluted and/or managed, which would influence the EM measures. In addition, to explore the pre- and post-acquisition EM behaviors of the acquiring firms is one of the primary goals of this study.

We separate cases that include successive (multiple) deals for the same acquiring firm during one M&A period. In this case, the post-acquisition year for one deal is also the pre-acquisition year for another deal for the same acquiring firm, which may affect the firm-year analysis for the post-acquisition year in this case because of mixed effects.

Therefore, to clearly observe the EM strategy and abnormal returns during the first part of the analysis, we focus on non-successive M&As. For these M&As, the acquiring firms do not engage in any acquisitions during the three-year-window prior to the acquisition or after the acquisition. After excluding 854 successive deals from the total M&A sample (2796 deals), we obtained a non-successive M&A deal sample with 1968 observations.

In the second part of the analysis, we observe M&As that include a successive (at least one) M&A deal during the three years prior to the acquisition and observe the impact of successive deals on the firm's EM decisions.

[11] We also used a 5 year-window, and the results were very similar.

3.3 Statistical analysis

This section analyzes the choice of EM methods used by acquiring firms during M&A years. Table 2 presents the number of deals by year and by industry. Descriptive statistics for the sample are presented in Table 3.

Table 2: M&A sample distribution

Panel A: Distribution of M&A deals by year

Year	Number of deals	Year	Number of deals	Year	Number of deals
1986	91	1996	150	2006	91
1987	80	1997	182	2007	99
1988	88	1998	232	2008	63
1989	67	1999	204	2009	64
1990	51	2000	199	2010	70
1991	44	2001	146	2011	38
1992	49	2002	90	2012	54
1993	62	2003	91	2013	44
1994	111	2004	93		
1995	149	2005	94		

Panel B: Distribution of M&A deals by industry

Industry	Observations
(10-14) Mining, oil, gas	167
(15-17) Construction	19
(20-39) Manufacturing	1341
(40-49) Transport, utilities, communication	259
(50-51) Wholesale	90
(52-59) Retail trade	161
(70-89) Services	759
Total	**2796**

Panel C: Distribution of M&A by payment methods

M&A's payment methods	Observations
Pure Cash payment	915
Pure Stock-for-Stock payment	1049
Mixed payment	832
Total	**2796**

Table 3: Firm and M&A deal characteristics

Panel A: Total M&A sample	Mean	Standard error of the mean	25%	Median	75%	Obs
ROA	0.101	0.003	0.066	0.124	0.174	2292
R&D expense ($M)	236.220	11.829	5.314	36.281	183.430	1492
Total assets ($M)	5365.547	211.521	280.690	1118.313	4448.100	2292
Leverage	0.248	0.004	0.088	0.233	0.360	2291
Market value ($M)	10762.650	694.782	253.769	1216.392	5078.757	2288
Market to book ratio	1.494	0.031	0.609	1.021	1.792	2291
Deal value ($M)	1359.808	111.174	50.300	188.890	735.445	2292
Panel B: Non-successive M&A sample						
ROA	0.091	0.004	0.059	0.116	0.168	1566
R&D expense ($M)	116.566	9.211	2.294	18.592	83.000	951
Total assets ($M)	3434.628	192.947	185.846	706.907	2671.000	1566
Leverage	0.259	0.005	0.092	0.241	0.384	1566
Market value ($M)	5279.704	567.930	171.323	697.060	2606.023	1563
Market to book ratio	1.381	0.037	0.559	0.932	1.609	1565
Deal value ($M)	1017.750	110.587	40.290	148.145	533.280	1566
Panel C: Successive M&A sample						
ROA	0.119	0.005	0.081	0.137	0.177	428
R&D expense ($M)	506.012	35.131	39.190	178.001	832.000	325
Total assets ($M)	11323.640	685.719	1323.986	4238.377	16486.500	428
Leverage	0.229	0.008	0.096	0.229	0.323	427
Market value ($M)	28284.160	2637.655	1448.483	5260.488	23545.690	427
Market to book ratio	1.708	0.072	0.746	1.276	2.121	428
Deal value ($M)	2517.331	384.596	109.575	438.700	1787.640	428

Firms' earnings surprises (rROA), abnormal changes in R&D expenses (rRD) and AAs are estimated using the models in Equations (3) and (4) for the all the available observations during the observation years in the database (including the non-M&A firms). The related statistics are presented in Table 4.

Table 4: Earnings management (EM) proxies and descriptive statistics

All firms	Mean	Standard error of the mean	Standard deviation	Obs
rROA	0.000	0.001	0.210	128615
rRD	0.000	0.001	0.141	71165
AA	0.000	0.000	0.151	114550
Non-M&A firms				
rROA	0.014	0.002	0.230	8762
rRD	-0.006	0.003	0.188	5226
AA	0.002	0.002	0.148	7879
M&A firms				
rROA	0.022	0.002	0.068	1952
rRD	-0.015	0.002	0.075	1411
AA	-0.014	0.003	0.132	1837

*, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

The total sample, including non-M&A firms, is used to estimate the "normal level" for EM proxies. We expect that the level of these "normal level" proxies is neutral (not different from zero). We check the average level of two EM measures (rRD and AA) and the earnings surprise (rROA). The statistics are similar to results from prior studies (Zang (2012)). There was no significance indicated by these three proxies, which implies that the sample is appropriate for EM measures.

5. Trade-off strategies between RM and AM

Analysis of the sample for non-successive deals

We analyze the number of observations in each of the 8 groups during the M&A years, i.e., during the pre-acquisition period (year -3 to -1) and the post-acquisition period (year 1 to 3). We test whether the acquiring firms that are suspected of EM during these two M&A involved periods are different from the "normal period". We expect different levels of REM during the observed periods, which refers to REM behaviors. We also expect a high level of suspected AM during the pre-acquisition years, which signifies a pre-acquisition AM as reported by prior research (Erickson and Wang (1996); Louis (2004)).

Table 5: EM strategy in non-successive deals

Panel A: Full sample								
M&A year	**-3**	**-2**	**-1**	**0**	**1**	**2**	**3**	**Ctrl Group**
OnlyAM	29.20% *	28.36%	26.55%	23.67% ***	21.45% ***	20.56% ***	19.42% ***	27.23%
EM-Free	14.23% *	14.44%	14.53%	11.88% ***	13.23% ***	13.48% ***	12.62% ***	15.61%
AM&REM	17.29%	17.64%	19.47%	17.31%	21.16% ***	21.53% ***	22.26% ***	18.51%
OnlyREM	16.69% **	17.94% ***	18.44% ***	16.30% **	18.32% ***	19.54% ***	20.27% ***	14.60%
Low_EM 1	7.72% *	8.32%	7.62% **	9.69%	7.93%	7.69% *	8.70%	8.86%
Low_EM 2	5.95%	5.08% *	5.52%	7.38% ***	7.14% **	5.61%	7.04% **	5.96%
Low_EM 3	5.02%	4.68%	4.12% **	7.86% ***	5.43%	6.15% **	5.15%	5.05%
Low_EM 4	3.91%	3.54%	3.75%	5.92% ***	5.34% ***	5.44% ***	4.54%	4.18%

In Panels A of Table 5, the percentage in each column indicates the proportion of observations in different groups from the three years before (denoted as -3 to -1) to the three years after (denoted as 1 to 3) M&A deals. *, ** and *** indicate the significance in the difference between percentages of EM suspect firms between M&A and Non-acquisition years at the 10%, 5% and 1% levels, respectively. We use **bold font** (gray color) to mark the positive (negative) significance of results for either the pre- or the post-acquisition period, which indicates a significant increase (decrease) in the observed group. The significance in the deal announcement year is not marked because the earnings information for this period is noisy and not a major concern of the pre- and post-acquisition EM analysis.

Table 5 presents the EM suspect rate for each M&A year conditional on the acquisition's method of payment. We compare this EM suspect rate for each M&A year to the non-M&A period (i.e., the same firm but during the non-M&A period that is reported in the right column). The results of the T-test for percentage change indicate significance at the level indicated as follows: *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

During the pre-acquisition years (year -3 to year -1) for the entire M&A sample, Panel A of Table 5 reports a marginal high level of suspicion of EM for the OnlyAM group (approximately 28% of acquiring firms are suspected of this strategy prior to acquisition vs. 27.23% during non-M&A years). This level of AM suspect rate indicates that a certain number of acquiring firms may use this EM strategy before acquisition. Plus, significant sign is noted for the OnlyREM group (approximately 17% vs. 14.60% during non-M&A years, respectively), which suggest the REM is likely to be used during the pre-acquisition years. The AM&REM strategy group shows a level which is slightly higher than which in the "non-acquisition" period (19.47% in the year before acquisition vs. 18.51% during non-M&A years, respectively), but the sign is not significant. As for the EM-free group, systematic low level is reported during this time.

During the post-acquisition period (year 1 to year 3), Table 5 Panel A illustrates a significantly high rate (approximately 18.5% vs. 16.68% for the non-M&A years) in the AM&REM group (suspected of both AM and REM) compared with the total M&A sample. Similar signs are also found in the OnlyREM group (approximately 21% vs. 17.01% for the non-M&A years). This suggests the acquiring firms prefer to employ these two EM strategies after acquisition, rather than before. On the contrary, systematic significant low levels of OnlyAM and EM-free strategies are reported (approximately 20% and 13% vs 27.23 and 15.61% during non-M&A years, respectively), which implies the AM strategy is less likely to be used alone after acquisition and in general less EM-free acquirers are observed during these period.

The results suggest in the post-acquisition years, acquiring firms are not EM free, they are likely to manage earnings through REM. Plus, AM is more likely to be used as a complementary EM method with REM, rather than be used alone.

The observations included in Group 5 through Group 8 were less volatile during the observed years. Similar to our prediction, these four groups had less motivation and were less likely to engage in EM; the results did not indicate any extra EM during the M&A years.

An analysis of the entire M&A sample provides the following insights into acquirers' EM behaviors:

1. Acquiring firms DO engage in systematic EM strategies during M&A years.
2. Different EM strategies are observed during pre- and post-acquisition periods.
3. In the pre-acquisition years, acquiring firms are likely to use the OnlyAM and OnlyREM strategies.
4. Acquiring firms prefer the REM involved EM strategies (OnlyREM and AM&REM) to manage earnings after acquisition.
5. A complementary effect of AM and REM is noted during the post-acquisition period.

The effect of the method of payment

This section presents the results of EM trade-off strategies of M&A firms when considering the method of payment.

First, we analyze M&As funded 100% with a stock exchange. For these stock-only acquirers, we predict a positive sign of using EM strategies prior to the M&A; because they paid the target firm with stock, they are more likely to engage in EM to increase the stock price and thus pay less for the target. Louis (2004) used the AAs model as a proxy for EM and noted indicators of EM prior to the M&A. Therefore, we assume that the extra EM strategy used by these firms before the deal is either OnlyAM or AM&REM.

Using the same method as we used for the entire sample, we obtain the following results for stock-only acquirers as described below.

Table 5: EM strategy in non-successive deals

Panel B: Stock payment only deals								
OnlyAM	34.20% ***	32.87% ***	29.95% ***	29.27% ***	22.46% *	21.82% **	22.13% *	25.28%
EM-Free	11.76% *	14.05%	13.94%	11.75% **	11.46% **	10.85% ***	10.93% **	14.20%
AM&REM	13.00% ***	14.30% ***	14.86% ***	15.82% **	18.71%	15.84% *	19.16%	18.64%
OnlyREM	13.68% **	14.30% *	15.09%	13.22% ***	13.80% **	17.08%	17.00%	16.58%
Low_EM 1	9.71%	11.04% *	10.83% *	10.51%	11.81% ***	12.22% ***	11.34% **	9.01%
Low_EM 2	9.17% ***	5.65%	6.45%	7.12%	9.24% ***	6.86%	8.77% ***	5.95%
Low_EM 3	5.06%	4.14% *	4.72%	8.14% ***	7.13% *	8.10% ***	6.07%	5.66%
Low_EM 4	3.42%	3.64%	4.15%	4.18%	5.38%	7.23% ***	4.59%	4.68%
Panel C: Cash payment only deals								
OnlyAM	22.61%	22.76%	20.39% ***	17.09% ***	17.47% ***	16.34% ***	15.83% ***	24.91%
EM-Free	13.82% *	13.56% **	12.18% ***	11.43% ***	12.27% ***	11.84% ***	11.37% ***	16.34%
AM&REM	23.64%	21.27%	25.57% **	21.30%	27.51% ***	28.31% ***	27.47% ***	21.74%
OnlyREM	21.06% **	25.75% ***	26.42% ***	23.47% ***	25.28% ***	25.23% ***	25.58% ***	17.95%
Low_EM 1	5.56%	4.48%	3.98% **	6.26%	3.47% ***	3.60% **	5.28%	5.80%
Low_EM 2	3.36%	2.99% **	4.46%	5.54%	4.09%	3.60%	4.74%	4.49%
Low_EM 3	4.78%	4.98%	3.38% *	7.46% ***	4.83%	5.41%	4.47%	4.66%
Low_EM 4	5.17%	4.23%	3.62%	7.46% ***	5.08%	5.66% **	5.28%	4.11%
Panel D: Mixed payment deals								
OnlyAM	31.42% ***	29.68% *	29.51% *	24.37%	24.66%	23.87%	20.44% ***	26.29%
EM-Free	17.49% *	15.94%	17.90% **	12.52% *	16.35%	18.45% ***	16.04%	14.74%
AM&REM	14.55% ***	17.25%	18.03%	14.65% ***	17.03% *	20.50%	19.81%	19.81%
OnlyREM	14.86%	13.01% **	13.39% **	11.98% ***	15.94%	15.96%	17.92%	16.73%
Low_EM 1	8.05%	9.65%	7.92%	12.52% ***	8.31%	7.03%	9.59%	8.05%
Low_EM 2	5.42%	6.87%	5.60%	9.72% ***	8.04% **	6.44%	7.70% *	5.86%
Low_EM 3	5.26%	4.97%	4.23%	7.99% ***	4.09%	4.69%	4.87%	4.55%
Low_EM 4	2.94%	2.63% *	3.42%	6.26% ***	5.59% **	3.07%	3.62%	3.97%

In Panels B to D, the percentage in each column indicates the proportion of observations in different groups from the three years before (denoted as -3 to -1) to the three years after (denoted as 1 to 3) M&A deals. *, ** and *** indicate the significance in the difference between percentages of EM suspect firms between M&A and Non-acquisition years at the 10%, 5% and 1% levels, respectively. We use **bold font** (gray color) to mark the positive (negative) significance of results for either the pre- or the post-acquisition period, which indicates a significant increase (decrease) in the observed group. The significance in the deal announcement year is not marked because the earnings information for this period is noisy and not a major concern of the pre- and post-acquisition EM analysis.

For the 100% stock-for-stock payment acquirers, Panel B of Table 5 clearly indicates that these firms are likely to use OnlyAM prior to an acquisition, as predicted. The OnlyAM group suspect rate is 25.28% during non-M&A years. During the three years prior to the acquisition, this rate is 34.20%, 32.87% and 29.99%. The level increases by approximately 30% during the pre-acquisition years. Besides, we did not find significant evidence that these firms engaged in OnlyREM or AM&REM, which implies that among

the three EM strategies, the 100% stock payment acquirers prefer the OnlyAM to the other EM strategies prior to acquisition.

Panel C of Table 5 show a high level in the AM&REM and OnlyREM strategy groups ((25.57% and approximately 25% before acquisition vs. 21.74% and 17.95% for the non-M&A years, respectively) in 100% cash payment deal sample. The result implies that the 100% cash payment acquirers are likely to employ both two REM involved EM behaviors before acquisition.

Panel D of Table 5 suggests that mixed payment acquiring firms' (firms that use both cash and stock-exchange as a method of payment) EM strategies are not as straightforward as those used by firms that employ other payment methods. These firms have a high level of OnlyAM prior to acquisition (approximately 30% vs. 26.29% for non-M&A years), which is quite similar to the 100% stock acquirers. Plus, marginal high level AM&REM and OnlyREM are also noted after acquisition, which are close to those of 100% cash payment firms. However, all these EM signs do not reach the 5% significance level.

Besides, different from the other payment groups, a high level of in the EM-free group is observed after acquisition (approximately 17% vs. 14.74% for non-M&A years). That indicates that among the mixed payment acquirers, it seems more of them are likely to be in the "EM-free club" before acquisition.

Therefore, an analysis of the method of payment subsample prior to an acquisition (Table 5, Panel B through D) indicates the following results:

1. Acquiring firms that use different methods of payment utilize specific EM strategies. A close link between acquiring firm's EM strategies and the acquisition payment method exists.
2. 100% stock payment acquirers prefer the OnlyAM strategy prior to an acquisition, which consists with prior studies (Erickson and Wang (1996); Louis (2004)).
3. 100% cash payment firms engage are likely to use both AM&REM and OnlyREM before acquisition.
4. The mixed payment group seems follow the similar pre-acquisition EM strategy as the 100% stock group. Besides, they have a largest EM-free member proportion among all acquiring firms.

In regards to the post-acquisition period, Table 5, Panels B through D provide the following evidence:

1. A relationship between the use of the EM strategy and the method of payment used for the M&A is apparent during the post-acquisition period.
2. The 100% stock payment firms show no sign of any EM strategy after acquisition. Although these firms are likely to use the OnlyAM strategy before acquisitions, they are less likely to continue this strategy immediately after an acquisition is complete.
3. The 100% cash payment acquirers are likely to employ AM&REM and OnlyREM strategies during the post- acquisition years, as in the pre-acquisition period.
4. The mixed payment firms seem to use both REM involved EM strategies after acquisition. Plus, they also have the highest level of "EM-free" group after acquisition.

Regarding the EM patterns during the years around the non-successive M&A deals, different EM strategies exists during periods before and after the acquisition. For the entire M&A sample, we note that the OnlyAM strategy was most likely used prior to the M&A and the AM&REM and OnlyREM strategy are noted in both before and after acquisition. Besides, in the post-acquisition years, AM is more likely to be used as a complementary method than be used alone.

Through a subsample analysis, result suggests the EM strategy is highly related to acquisition payment methods. Stock payment acquirers are more likely to engage in OnlyAM strategies prior to acquisition but do not engage EM after the deal. The 100% cash payment acquirers are likely to employ AM&REM and OnlyREM strategies in both pre- and post- acquisition years. The mixed payment firms exhibites the use of two opposite EM strategies; it seems they use both OnlyAM / OnlyREM prior to acquisition and REM involved EM strategies after acquisition; on the other hand, the number of firms in the "EM-free" group is the highest among the other payment method groups. The complementary effect between AM and REM is also observed in the whole and the subsample analysis.

6. The continuity effect of EM

The results that are discussed in the previous section illustrate that acquiring firms engage in EM behaviors, not only during the years prior to an acquisition but also after the acquisition. This study seeks to determine whether the acquiring firms' post-acquisition EM behaviors are related to behaviors during the pre-acquisition period.

The primary purpose of the continuity effect analysis is to observe the acquiring firms' EM behaviors after an acquisition. We investigate if the acquiring firms engage in similar EM behaviors during the M&A years and also analyze if these behaviors are related to method of payment the acquiring firms use to pay their target.

Because cash is important for 100% cash payment acquirers, such firms may be motivated to engage in EM in prior to and after an acquisition. We expect to note a high continuity effect of EM for this group of acquirers. For the 100% stock payment firms, we expect to find a low continuity effect for EM behaviors for primarily two reasons: first, once a firm engages too many accruals over a short period of time, no more accruals can be managed, and the firm needs time to recover. The second reason is because of scrutiny. When AM is used more frequently, it is more likely to be discovered by an external auditor or regulators, which may lead to legal punishment. Therefore, AM is less likely to be continuously used as REM.

Table 7: Correlation between pre- and post-acquisition EM behaviors

Panel A	Total sample	(obs=1828)	Panel B	100% Cash	(obs=515)
	Post-acq REM	Post-acq AM		Post-acq REM	Post-acq AM
Pre-acq REM	48.99%***	3.66%	Pre-acq REM	55.67%***	8.36%
Pre-acq AM	7.13% ***	7.32%***	Pre-acq AM	5.01%	8.13%

Panel C	100% Stock	(obs=712)	Panel D	Mixed payment	(obs=601)
	Post-acq REM	Post-acq AM		Post-acq REM	Post-acq AM
Pre-acq REM	40.33%***	3.99%	Pre-acq REM	50.20%***	-0.21%
Pre-acq AM	7.38%	8.91%	Pre-acq AM	10.67%	3.85%

The correlation matrix shows the link between the acquiring firm's pre-acquisition EM behavior and its EM behavior in the post-acquisition years. "Pre-acq AM(REM)" and "Post-acq AM(REM)" are dummy variables, which take the value of one if the observed acquiring firm exhibits AM(REM) behaviors in the pre (or post)-acquisition period and zero otherwise. Panels A, B, C and D illustrate the results for the samples: "All non-successive M&A" "100% Cash", "100% Stock" and "Mixed payment" and "Mixed payment (Stock)" samples, respectively. "***" indicates a significance levels of correlation coefficients of 0.01.

Panel A of Table 7 presents the correlation matrix between M&A acquiring firms' post-acquisition EM decisions and pre-acquisition decisions. We measure an acquiring firm's pre- and post-acquisition AM/REM decision using the dummy variables, " Pre-acq AM(REM)" and "Post-acq AM(REM)". These dummy variables assume a value of one if the observing acquiring firm engages in AM(REM) behaviors during the observed period and zero otherwise.

Panel A of Table 7 illustrates the type of payment used by M&A acquirers; the continuity effect of REM behaviors is strong. A total of 48.99% (significant at 1%) of acquiring firms that engage in REM prior to an acquisition continue to use EM strategies after the acquisition. This result is important because the acquiring firm's REM behaviors in an M&A context have not been analyzed in prior studies. However, results indicate that this type of EM is not only used during M&A years but is also likely to be used by acquiring firms until the post-acquisition years.

Conversely, the results indicate that the continuity effect of AM is relatively low (7.32%, significant at 1%), which suggests that AM is not used during the post-acquisition period if firms had used this strategy prior to the acquisition. The result confirms our hypothesis and is consistent with prior studies (Louis (2004)).

Panels B, C and D of Table 7 provide the correlation matrix of acquiring firms' EM choices conditional on the M&A payment methods used during the pre- and post-acquisition periods. These results are similar to those shown in Panel A of the table. The correlation between pre- and post-acquisition REM choices is 55.67%, 40.33% and 50.20% (all these three coefficients are significant at 1%) among acquirers that paid for the M&A using 100% cash, 100% stock and mixed payment methods, respectively. Although this correlation is less significant among the stock payment firms than for the cash or mixed payment groups (40.33% vs. 55.67% and 50.20%), these results indicate that a strong continuity effect of REM behaviors during the M&A years generally occurs for all the methods used by payment acquirers.

Conversely, results from Table 7, Panels B, C and D illustrate a low continuity effect of AM for the method of payment subsamples. The correlations are 8.13%, 8.91% and 3.85% (none of them is significant) for the 100% cash, 100% stock and mixed payment firms, respectively. These results are similar to the results for the all-payment-type sample and indicate that the continuity effect of AM generally occurs for all payment types, similar to the results for the REM.

Table 8: Continuity effect of EM for non-successive acquisition acquirers

Panel A	(1) RM	(2) RM	(3) RM	(4) AM	(5) AM	(6) AM
Pre-acq REM	1.246***	1.248***	1.251***	0.087	0.080	0.082
	(0.092)	(0.092)	(0.092)	(0.087)	(0.087)	(0.087)
Pre-acq AM	0.093	0.082	0.085	0.115	0.119	0.113
	(0.091)	(0.091)	(0.091)	(0.078)	(0.078)	(0.078)
100% Cash	0.189*			-0.148*		
	(0.101)			(0.088)		
100% Stock		-0.166*			0.001	
		(0.096)			(0.084)	
Mixed payment			-0.007			0.135
			(0.102)			(0.085)
Acquirer MV	0.052	0.059*	0.067**	-0.035	-0.046*	-0.042
	(0.032)	(0.031)	(0.031)	(0.028)	(0.027)	(0.027)
Target MV	-0.051	-0.062*	-0.066*	0.007	0.019	0.011
	(0.037)	(0.036)	(0.036)	(0.032)	(0.031)	(0.031)
Premium	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-1.472**	-1.218*	-1.361**	0.075	-0.024	0.036
	(0.663)	(0.664)	(0.661)	(0.563)	(0.564)	(0.562)
Industry & Year fixed effect controlled						
Pseudo.R2	0.267	0.267	0.265	0.061	0.059	0.061
Observation	1254	1254	1254	1300	1300	1300

Panel B	(1) 100% cash REM	(2) 100% stock REM	(3) Mixed payment REM	(4) 100% cash AM	(5) 100% stock AM	(6) Mixed payment AM
Pre-acq REM	1.537***	1.172***	1.686***	0.419**	0.017	-0.159
	(0.182)	(0.168)	(0.240)	(0.165)	(0.159)	(0.188)
Pre-acq AM	-0.175	-0.033	0.661***	0.094	0.327**	0.099
	(0.186)	(0.169)	(0.227)	(0.152)	(0.145)	(0.160)
Acquirer MV	-0.034	0.129**	0.202**	-0.081*	-0.056	0.037
	(0.056)	(0.064)	(0.088)	(0.049)	(0.058)	(0.062)
Target MV	0.046	-0.184**	-0.105	0.023	0.024	-0.029
	(0.077)	(0.074)	(0.081)	(0.065)	(0.065)	(0.062)
Premium	0.005*	-0.000	0.002	0.002	0.003**	0.000
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Constant	-1.702	-0.916	-4.015**	0.811	-1.418	0.425
	(1.559)	(1.388)	(1.598)	(1.180)	(1.184)	(1.127)
Industry & Year fixed effect controlled						
Pseudo.R2	0.331	0.243	0.395	0.126	0.107	0.113
Observation	365	451	335	403	450	364

Through probit regression model, Panels A and B show the relation between pre- and post-acquisition EM behaviors of non-successive deal acquirers. The dependent variables "RM (AM)" are dummy variables, which take the value of one if the observed acquiring firm uses REM (AM) in the post-acquisition period and zero otherwise. "Pre-acq REM (AM)" are dummy variables, which take the value of one if the observed acquiring firm exhibits the AM (REM) behaviors in the pre-acquisition period and zero otherwise. Abnormal accruals and Abnormal reduction in R&D expenses are proxies for AM and REM, respectively. The variable "Target MV" is the target firm's market capitalization (in natural logarithm) prior to the announcement. The variable "Premium" is the stock offer price for the target stock price premium one week prior to announcement.

Panel A uses a sample of all M&A deals, and Panel B uses six subsamples of "Major Cash/Stock", "100% Cash/Stock" and "Mixed Cash/Stock". To avoid a substantial decrease in the observed sample, we retain an observation if the firm has available data for either the pre- or post-acquisition years. Thus, the observation numbers differ across the samples.

Table 8 provides evidence for the continuity effect of EM behaviors. Panel A uses probit regressions on a sample of all non-successive deals; the variables REM and AM are dummy variables that assume a value of one if the acquiring firm engages in AM(REM) behaviors during the post-acquisition period and zero otherwise.

Regressions (1) through (4) in Table 8 Panel A imply the following: first, significant links between REM decisions made during post- and pre-acquisition periods indicate a systematic continuity effect of REM for all method of payment acquirers, as in the previous analysis. In addition, the post-acquisition REM decision is not related to the pre-acquisition AM choice.

Regressions (5) through (8) in Table 8 Panel A indicate that post-acquisition AM seems not related to pre-acquisition AM, nor related to pre-acquisition REM decisions. This result confirms the low continuity effect of AM behaviors around M&A years.

In addition, 100% cash payment method shows marginal significant positive effect on the continuity effect of REM; while the 100% stock payment method has opposite (marginal

negative) effect. Besides, this continuity effect of REM seems positive related to the size of acquiring firm and negatively related to the size of target firm.

In Table 8 Panel B, we use the subsample analysis based on method of payment and apply the same model as in Panel A to investigate the effect of the payment method from another angle. For 100% cash acquirers, the post-acquisition REM and AM choice are both related to pre-acquisition REM behaviors. Result implies the strong continuity of REM behaviors and also the AM's complementary effect. For 100% stock acquirers, the post-acquisition REM is also only related to pre-acquisition REM, whereas the post-acquisition AM is not related to any pre-acquisition EM. This post-REM choice for mixed payment firms is also related to pre-acquisition REM and AM. However, the post-acquisition AM is only related to the pre-acquisition AM decision. Additionally, we also find similar effect on the continuity effect of REM from that the size of the acquirer and the target firm.

The overall results of the continuity effect analysis suggest that a strong continuity effect occurs in REM and a weak continuity effect occurs in AM behaviors. These continuity effects also vary according to different methods of payment of acquisition and also affected by the size of acquiring and target firm.

7. Impacts of EM on a firm's return during the post-acquisition period

In this section, we investigate firms' stock market performance during the post-acquisition period. More specifically, we investigate whether firms exhibit different levels of stock market performance that are dependent on the pre-acquisition EM strategy and (or) the method of payment used for the acquisition. The results that are reported in the previous section indicate that an acquiring firm's EM strategies are closely related to the method of payment used for the acquisition. In this section, we focus on the subsample analysis of the method of payment and pre-acquisition EM.

We use three method-of-payment subsamples (100% cash, 100% stock and mixed payment) and five pre-acquisition EM strategy subsamples (OnlyAM, EM free, AM&REM, OnlyREM and low suspicion EM group). The first four groups used for this analysis are the same as Groups 1 through 4 used in the previous section, and the low suspicion EM group is the combination of Groups 5 through 8. These firms did not exhibit any significant indicators for EM, they are included in this section for the integrity of the analysis and also act as an additional control group.

We proceed the abnormal return (AR) analysis through two AR mechanisms. The first one compute the normal return based on the observing acquiring firm's average return on the stock market during the non-concerned acquisition years; the normal return in the second mechanism is estimated using a matching sample model in alignment with Barber and Lyon (1997) (More details in section 3 Methodology). The results are shown in Table 9.

Table 9: Abnormal return in non-successive M&A deals

Panel A1				**Panel A2**			
Payment method groups		**Abnormal return**	**Obs**	**Payment method groups**		**Abnormal return**	**Obs**
Before acquisition	100% CASH	0.05***	1136	After acquisition	100% CASH	-0.056***	1130
		(0.016)				(0.005)	
	100% STOCK	0.141***	1218		100% STOCK	-0.032	1212
		(0.021)				(0.021)	
	MIXED Deals	0.042**	1028		MIXED Deals	-0.062***	1091
		(0.018)				(0.019)	

Abnormal return (based on Non-acquisition years method) in the pre- and post-acquisition years

Panel B1				Panel B2			
EM strategy groups		**Abnormal return**	**Obs**	**EM strategy groups**		**Abnormal return**	**Obs**
	Low suspicion of EM	-0.096***	469		Low suspicion of EM	-0.208***	592
		(0.029)				(0.027)	
	OnlyAM suspected	0.138***	944		OnlyAM suspected	0.029	713
		(0.022)				(0.025)	
Before acquisition	EM-free	0.149***	546	After acquisition	EM-free	0.05*	494
		(0.026)				(0.027)	
	AM&RM suspected	0.129***	599		AM&RM suspected	-0.008	741
		(0.027)				(0.023)	
	OnlyREM suspected	0.074***	544		OnlyREM suspected	-0.022	575
		(0.024)				(0.024)	

Abnormal return (based on Non-acquisition years method) in the pre- and post-acquisition years

Panel C EM Group	Year+1	Year+2	Year+3
Low suspicion of EM	0.06	0.014	-0.081*
	(0.044)	(0.043)	(0.049)
OnlyAM suspected	0.031	0.061	0.06
	(0.039)	(0.043)	(0.043)
EM-free	0.07	-0.016	0.05
	(0.053)	(0.047)	(0.051)
AM&RM suspected	-0.042	0.063	0.002
	(0.039)	(0.039)	(0.047)
OnlyREM suspected	-0.014	-0.03	-0.004
	(0.052)	(0.05)	(0.053)

Abnormal return (based on matched firm-year method) in the post-acquisition years

This table presents the yearly abnormal returns and the T-test of difference from zero for the acquiring firms during the three years before acquisition and the three years after acquisition. The abnormal returns in Panel A1, A2, B1 and B2 are the difference between the return on the stock market in the observing year and the average market return during the non-acquisition years (i.e., the observed years that excluded the M&A deal year and two years before and after). The abnormal returns in Panel C are computed using the matched-firm approach, as in Barber and Lyon (1997). The abnormal returns in Panel A1 and A2 are grouped by M&A payment method. Those in Panel B1, B2 and C are listed according to EM strategy.

Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years. (The strict sample provides similar results). Thus, the number of observations for the sample before and after acquisition differ. Mean returns are presented with standard errors, which appear in parentheses. (*, ** and *** indicate the significance of firms' abnormal returns at the 10%, 5% and 1% levels, respectively.)

Panels A and B of Table 9 present the results for the differences in the t-tests of acquiring firm's abnormal returns (AR) during the three-year period prior to and after the acquisition according the subsample of method of payment. The ARs in Panel A1, A2, B1 and B2 are computed based on annual AR on the stock market through the first AR mechanism; the ARs in Panel C1 and C2 are based the second mechanism.

Panels A1 and illustrate a positive abnormal return for all method of payment firms and AR is significant for the 100% cash and 100% stock and the mixed payment acquirers before acquisition. During the post-acquisition years, all firms reported systematically negative AR. These results are in line with previous literature. Besides, among the

acquiring firms, the negative ARs seem less significant among the 100% stock payment firms.

Panel B1 reports the AR according to the pre-acquisition EM strategies. In contract the low suspicion of EM group, all the EM involved acquiring firms have positive and significant AR before acquisition. After acquisition, while the low suspicion of EM group still reports negative AR, these EM engaged acquirers seems suffer less from an underperformance on the stock market. OnlyAM group reports a non-significant positive AR; negative but not significant AR are observed for AM&REM and OnlyREM and marginal positive AR is found for the EM-free acquirers. The result suggests the pre-acquisition EM has the effect of mitigating the underperformance on the stock market after acquisition.

Panels C1 shows the yearly AR for these acquiring firms, based on the return of their rival firms in the industry (second AR mechanism) during the first, the second and the third year after acquisition. No systematic significant of AR is observed, which suggest that after acquisition, no significant difference in the market performance are indicated for these acquiring firms.

These results suggest that after the acquisition, the firm's performance generally significantly declined when compared to their own standard. However, when compared to their rivals, they do not fall behind. Besides, the use of pre-acquisition EM could alleviate the negative impact from acquisition in the post-acquisition period.

The EM strategy subsample AR analysis provides the following insights:

1. An EM strategy may help a firm address underperformance during post-acquisition years.
2. Even firms that engage in EM suffered a negative return compared with themselves in the non-M&A years, they can catch up with their industry rivals.

In this section, two AR models provide different and supplemental perspectives of an acquiring firm's post-acquisition performance. The results suggest that pre-acquisition EM strategies help firms suffer less from underperformance during post-acquisition years. These results are important because they suggest that the temporary use of EM strategies during pre-acquisition periods may not harm a firm but rather may mitigate the underperformance during post-acquisition period.

8. The case of successive deals

Previous sections discussed the non-successive M&A deal acquirers' EM strategies during the M&A years. The non-successive M&A sample provides a scenario for the analysis but still includes a sample selection problem and limits generalization of the results.

This section investigates the acquiring firm's EM strategies for successive M&As and explores if the results may be generalized for all M&A acquirers. We focus on the following questions:

1. Do successive M&A acquirers become accustomed to certain EM strategies during acquisitions?
2. Do successive M&A acquirers engage in different behaviors when compared to non-successive M&A acquirers?
3. Is there a strategy that is applicable for all M&A acquirers, regardless of whether successive M&A deals are made?

We utilize the same methodology that was used for the non-successive deals sections. Among the entire M&A sample, 402 M&As met the "successive deal" condition, which implies that each of the M&A deal acquirers engaged in at least one acquisition during the pre-acquisition period (the 3 years prior to the acquisition) and no other deals were made during the post-acquisition period.

EM strategies for repetitive acquirers that have engaged in successive M&As

We suggest that recent M&As impact subsequent acquisition's EM choice, particularly the pre-acquisition EM strategy. Accruals may be constrained and there may also be scrutiny considerations. Therefore, we expect that AM strategies are less utilized during pre-acquisition periods.

Regarding REM behaviors, we expect they may not be less than for the non-successive deals because unlike AM, REM is less likely to be constrained and may become an alternative choice when AM is constrained.

Table 6: EM strategy for the acquiring firms that have prior successive deal(s)

Panel A: Full sample								
M&A year	**-3**	**-2**	**-1**	**0**	**1**	**2**	**3**	**Ctrl Group**
OnlyAM	21.48%	21.04%	18.14% ***	15.32% ***	16.34% ***	16.44% ***	15.07% ***	24.38%
EM-Free	13.20%	12.36%	13.08%	10.64% ***	11.11% **	9.11% ***	10.96% **	15.15%
AM&REM	19.02%	22.13%	23.84%	22.77%	23.53%	23.78%	26.26% **	21.61%
OnlyREM	26.85% ***	24.30% **	26.58% ***	24.47% **	28.98% ***	26.89% ***	26.26% ***	19.63%
Panel B: Stock payment only deals								
OnlyAM	29.32%	26.81%	23.45%	23.57%	19.71%	19.85%	16.92%	23.07%
EM-Free	15.79%	15.22%	14.48%	10.00%	10.95%	9.56%	11.54%	13.24%
AM&REM	12.03% ***	22.46%	15.17% **	18.57%	20.44%	12.50% ***	17.69%	22.37%
OnlyREM	21.80%	18.84%	23.45%	20.71%	19.71%	22.79%	26.92% *	20.78%
Panel C: Cash payment only deals								
OnlyAM	14.53% ***	15.14% ***	13.30% ***	10.11% ***	12.64% ***	12.71% ***	14.20% ***	24.28%
EM-Free	8.38% ***	8.11% ***	9.57% **	8.51% ***	8.79% **	7.18% ***	8.52% **	15.68%
AM&REM	25.14%	21.62%	32.98% ***	28.19% *	28.57% **	32.04% ***	30.11% **	22.18%
OnlyREM	33.52% ***	34.59% ***	32.98% ***	33.51% ***	39.01% ***	33.70% ***	31.25% ***	21.83%
Panel D: Mixed payment deals								
OnlyAM	22.96%	23.19%	19.15%	14.08% **	17.86%	18.05%	14.39% *	21.13%
EM-Free	17.04%	15.22%	16.31%	14.08%	14.29%	11.28%	13.64%	13.47%
AM&REM	17.78%	22.46%	20.57%	19.72%	20.00%	24.06%	29.55%	23.59%
OnlyREM	22.96%	15.94% **	21.28%	16.20% **	25.00%	21.80%	18.94%	23.99%

In Panels A to D, the percentage in each column indicates the proportion of observations in different groups from the three years before (denoted as -3 to -1) to the three years after (denoted as 1 to 3) M&A deals. *, ** and *** indicate group number's significance at the 10%, 5% and 1% levels, respectively, between M&A and Non-acquisition years. We use **bold font** (gray color) to mark the positive (negative) significance of results for either the pre- or post-acquisition period, which indicates a significant increase (decrease) in the observed group. The significance of the deal announcement year is not marked because the earnings information for this period is noisy and not a major concern of the pre- and post-acquisition EM analysis.

Panel A of Table 6 provides the percentage for each EM strategy suspected acquirer in all method of payment sample. The OnlyAM suspect rate is 21.48%, 21.04% and 15.32% for three post-acquisition years, which are all significantly lower than the rate during the non-M&A years (24.38%). During the post-acquisition year, the OnlyAM suspect rate is even lower: 16.34%, 16.44% and 15.07%. The result indicates a systematic low OnlyAM suspect rate during the pre- and post-acquisition periods for all successive deal acquirers.

The AM&REM suspect rate during post-acquisition years seems higher than which in the non-M&A years but not significant in most of time. Compared to the non-successive deal scenario, the AM&REM strategy is less frequently to be used during both before and after acquisition. On the other hand, significant high levels of OnlyREM suspect rates are noted in the years before and after acquisition (approximately 17% and 19% in the pre- and

post-acquisition period, respectively vs. 14.60% during the non-M&A years). This implies that the acquiring firms is still very likely to manage earnings through REM, which is similar to the non-successive case.

A portion of the EM-free group is generally low during both the pre- and post-acquisition periods (approximately 13% and 10% in the pre- and post-acquisition period, respectively vs. 15.15% during the non-M&A years), which suggests that successive deal acquirers are less likely to be EM-free during acquisition years. In addition, we observe that the suspect rate of OnlyREM is slightly higher during the pre- and post-acquisition periods, as we expected.

Panels B through D of Table 6 present the same analysis but consider the M&A method of payment, as in Panel A.

For the 100% stock payment firms, we do not observe any significant EM sign, even for pre-acquisition AM behaviors. Similar situation is noted for the mixed payment group. On the contrary, significant high level in the AM&REM and OnlyREM groups are observed for the 100% cash payment acquirers,

These subsample analyses indicate a low level of AM suspect rates for each subsample. In addition, results also suggest that the pre-acquisition REM strategy and the AM&REM strategy are more likely to be used by the 100% cash payment acquirers than by firms that use other methods of payment, in both pre- and after acquisition periods.

The EM strategy analysis in this case provides us with the following insights:

1. In contrast with the non-successive deal acquirers, the probability of using AM method is largely reduced in both before or after the acquisition years.
2. 100% stock and mixed payment acquirers are less likely to engage OnlyAM before acquisition, nor the other EM strategies either.
3. In contract to the AM strategy, the use of the REM involved EM strategy seems not be affected by the recurrence of M&A deals. Both OnlyREM and AM&REM strategies are likely to be engaged by the 100% cash payment firms, during both pre- and post-acquisition periods. This fact is similar to which in the non-successive scenario.

Abnormal returns for acquiring firms that engage in successive M&As

In alignment with the same abnormal return model that was used in the previous section for non-successive deals acquirers, ARs are measured by themselves during non-M&A years and by matched control firms. We observe these successive deal acquirers' ARs before and after acquisitions and consider the method of payment used for the M&A and also consider EM strategies.

Table 10: Abnormal return in successive M&A deals

Panel A1				Panel A2			
Payment method groups		**Abnormal return**	**Obs**	**Payment method groups**		**Abnormal return**	**Obs**
Before acquisition	100% CASH	-0.021	282	After acquisition	100% CASH	-0.112***	396
		(0.03)				(0.021)	
	100% STOCK	0.158***	232		100% STOCK	-0.053	259
		(0.041)				(0.038)	
	MIXED Deals	0.13***	211		MIXED Deals	-0.067**	296
		(0.044)				(0.03)	

Abnormal return based on non-acquisition years method in the pre- and post-acquisition years

The Panel A1 and A2 of Table 10 present the yearly abnormal returns and the T-test of difference from zero for the acquiring firms during the three years before acquisition and the three years after acquisition. The abnormal returns are computed as the difference between the return on the stock market in the observing year and the average market return during the non-acquisition years (i.e., the observed years that excluded the M&A deal year and two years before and after). The abnormal returns are grouped by M&A payment method.

Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years. (The strict sample provides similar results). Thus, the number of observations for the sample before and after acquisition differ. Mean returns are presented with standard errors, which appear in parentheses. (*, ** and *** indicate the significance of firms' abnormal returns at the 10%, 5% and 1% levels, respectively.)

Panels A1 and A2 of Table 10 indicate that the performance varies according to the method of payment used for the M&A. During the pre-acquisition period (in Panel A1), 100% stock and the mixed payment firms reported over performance, which is similar to the results of the non-successive sample. This over performance is significant when compared to the results of the non-M&A years (AR is 16.9% and 13%, respectively, significant at 1% level). The 100% cash payment successive deal acquirers illustrated slightly negative AR (not different from zero) prior to the acquisition, which was different from which in the non-successive sample (significant positive ARs were indicated among the non-successive 100% cash payment acquirers). The result suggests that the repetitive cash acquirers are less likely to reports an over performance prior to acquisition.

During post-acquisition years, when compared with their performance during non-M&A years, underperformance was noted among all method of payment groups (in Panel A2). For 100% cash and mixed payment acquirers, ARs are -11.2%% and -6.7%, significant at 1% level, respectively. 100% stock payment acquirers report a non-significant underperformance at 3.9%. These results are similar to the results reported for the non-successive deals.

Panel B1				**Panel B2**			
EM strategy groups		**Abnormal return**	**Obs**	**EM strategy groups**		**Abnormal return**	**Obs**
	Low suspicion of EM	0.019	95		Low suspicion of EM	-0.162***	157
		(0.072)				(0.046)	
	OnlyAM suspected	0.169***	138		OnlyAM suspected	-0.088**	138
		(0.051)				(0.037)	
Before acquisition	EM-free	0.251***	102	After acquisition	EM-free	0.084	103
		(0.063)				(0.055)	
	AM&RM suspected	0.018	172		AM&RM suspected	-0.102***	236
		(-0.04)				(0.032)	
	OnlyREM suspected	0.021	186		OnlyREM suspected	-0.054*	261
		(0.036)				(0.029)	

Abnormal return based on non-acquisition years method in the pre- and post-acquisition years

The Panel B1 and B2 of Table 10 present the yearly abnormal returns and the T-test of difference from zero for the acquiring firms during the three years before acquisition and the three years after acquisition. The abnormal returns are computed as the difference between the return on the stock market in the observing year and the average market return during the non-acquisition years (i.e., the observed years that excluded the M&A deal year and two years before and after). The abnormal returns are grouped according to EM strategy.

Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years. (The strict sample provides similar results). Thus, the number of observations for the sample before and after acquisition differ. Mean returns are presented with standard errors, which appear in parentheses. (*, ** and *** indicate the significance of firms' abnormal returns at the 10%, 5% and 1% levels, respectively.)

Panels B1 and B2 of Table 10 illustrate repetitive acquirers' performance, conditional on the use of EM strategies. During the pre-acquisition years, positive AR is noted for OnlyAM and EM-free groups, which is similar to the result in the non-successive scenario. On the other hand, the positive AR sign no longer exists in the two REM involved strategy groups, nor in the low suspicion of EM group.

During the post-acquisition period, the low suspicion of EM group indicated a significant underperformance (-16.2%, significant at 1% level), as which in the non-successive sample. Meanwhile, significant underperformance is observed for the EM strategy groups after acquisition: the OnlyAM group meets an underperformance of -8.8% (significant at 5% level), an abnormal return of -10.2% (significant at 1%) is noted for the AM&REM group and the OnlyREM strategy acquirers report a marginal negative AR. The result

implies that the reversal effect of EM in a successive deal scenario are much more severe in which in the non-successive case.

Panel C EM strategy Group	Year+1	Year+2	Year+3
Low suspicion of EM	-0.140*	-0.100	0.047
	(0.077)	(0.081)	(0.097)
OnlyAM suspected	0.073	0.010	0.054
	(0.082)	(0.09)	(0.085)
EM-free	-0.005	0.055	-0.015
	(0.083)	(0.118)	(0.133)
AM&RM suspected	0.007	-0.085	-0.004
	(0.049)	(0.059)	(0.073)
OnlyREM suspected	-0.009	0.025	0.071
	(0.063)	(0.059)	(0.061)

Abnormal return based on matched firm-year method in the post-acquisition years

The Panel C of Table 10 presents the yearly abnormal returns and the T-test of difference from zero for the acquiring firms during the three years before acquisition and the three years after acquisition. The abnormal returns are computed using the matched-firm approach, as in Barber and Lyon (1997). The abnormal returns are listed according to EM strategy.

Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years. (The strict sample provides similar results). Thus, the number of observations for the sample before and after acquisition differ. Mean returns are presented with standard errors, which appear in parentheses. (*, ** and *** indicate the significance of firms' abnormal returns at the 10%, 5% and 1% levels, respectively.)

Panel C of Table 10 presents the AR in different EM strategy group after acquisition, based on the mechanism of match sample model. Similar to the results in the non-successive deals, the repetitive acquirer's post-acquisition performance on the stock market seems close to their rivals.

The above analysis in in successive deal scenario suggest two interesting results: first, the underperformance for the low-suspicion EM acquirers seems less important. That indicates the acquiring firms may gain experience from the recurrence of acquisition and mitigate the underperformance; second, the use of EM should be very cautious in the successive case because the side effect from the "overuse" of EM may be important on the post-acquisition performance.

9. Robustness check

Alternative model of Accruals management

In this section, we apply the modified Jones model (1995) to estimate AAs and duplicate the previous analysis instead of using the modified Jones model that was augmented for net income (Kothari et al., 2005).

First, we compute TA_{it} as in equation (2).

Second, the coefficient β of the modified Jones model is estimated as follows:

$$TA_{it} = \beta_0 + \beta_1 * \left(\frac{1}{Assets_{it-1}}\right) + \beta_2 \Delta Rev_{it} + \beta_3 PPE_{it} + \upsilon_{it} \quad (5)$$

where TA_{it} is the same variable used in Kothari's model, ΔRev_{it} represents firm i's change in revenue for year t scaled by lagged total assets and PPE_{it} represents the gross property, plant, and equipment for year t scaled by lagged total assets.

Then, the normal accruals are computed by the following equation:

$$NA_{it} = \beta_1 \frac{1}{Assets_{it-1}} + \beta_2(\Delta Rev_{it} - \Delta Rec_{it}) + \beta_3 PPE_{it} \quad (6)$$

where ΔRec_{it} represents the change in receivables for firm i in year t scaled by lagged total assets and PPE_{it} is the same variable that is used in Jones model. NA_{it} is also an asset-adjusted index, which is estimated cross-sectionally by year and using 2-digit SIC codes for the group with at least 10 observations.

The discretionary accruals (DA, the same notation as AAs, we use DA here to distinguish variables from the Kothari's model) is computed as follows:

$$DA_{it} = TA_{it} - NA_{it} \quad (7)$$

Using the modified Jones model, we conduct the analysis and obtain similar results. For brevity, we do not include these results in the appendix tables.

10. Conclusions

This paper observes in the US market, the M&A acquirers' EM behaviors and the impact on firms' future performance. This study contributes to the literature as follows. First, this study indicates that the EM is likely be used by acquiring firms, regardless of which method of payment is employed. In addition, these EM behaviors are noted not only prior to an acquisition but also after the acquisition. Furthermore, AM is not the only EM strategy used by acquiring firms; an alternative EM method, REM, may also be employed.

Second, the results of this study indicate that a complementary effect exists between AM and REM, which implies that acquiring firms are likely to concurrently engage in AM and REM strategies. This result is important because prior studies did not observe this effect in the M&A context, although this combined strategy is frequently adopted by acquiring firms after an acquisition.

Third, we noted a close link between an acquiring firm's choice of EM method and the method of payment used for the acquisition. 100% cash acquirers are most likely to employ REM during the years around acquisitions, and they are also likely to engage in AM as a complementary EM method that accompanies REM after the acquisition. 100% stock payment acquiring firms prefer to employ only AM during the post-acquisition period and typically do not engage in EM after an acquisition. Mixed payment acquirers exhibited a marginally significant sign of using a combined AM and REM strategy both prior to and after the acquisition.

Fourth, the results suggest that acquiring firms are likely to continue engaging in REM behaviors after an acquisition if they were engaged in these behaviors prior to the acquisition. This effect is noted for all method of payment firms. In contrast with AM, the continuity of REM is much (four to seven times) stronger among acquiring firms. In addition, the significant sign of the continuity effect (between pre-acquisition EM and post-acquisition AM) can be observed among all type of payment acquirers.

By analyzing both non-successive and successive acquisition samples, this study provides evidence of EM for acquirers who engage in successive acquisitions. The results indicate that the 100% stock and mixed payment repetitive acquirers are less likely to engage in AM during pre- or post-acquisition periods as those non-repetitive ones. On the other

hand, the 100% cash payment firms' EM strategy seems not be affected by the recurrence of acquisition. These firms maintain similar EM strategies as those in the non-repetitive ones: REM is employed before and after acquisition. Besides, AM is also likely to be used as a complementary EM method in the post-acquisition period.

Furthermore, this study investigates acquiring firms' post-acquisition performance. The results of the analysis using two abnormal return models indicate that non-successive acquiring firms that engage in pre-acquisition EM suffer less from underperformance than firms that do not use this strategy, which suggests that the occasional use of EM for M&As may not be harmful but rather may enhance a firm's future performance. However, for the repetitive acquirer, the pre-acquisition EM seems have opposite effect as in the non-successive scenario, which reminds that the side effect of EM should not be neglected, especially for the REM involved EM strategies.

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12. Appendix

Variables descriptions and data sources.

Variable name	Notation	Descriptions and data sources
Abnormal R&D expenses	rRD	Observing firm is suspect of REM through this method if an abnormal reduction in R&D is beyond its industry median level (Compustat)
Abnormal Accruals	AAs	Observing firm is suspect of AM if AA is beyond its industry median level (Compustat)
Pre-acquisition AM suspected	Pre-acq AM	A dummy coded 1 if the observing firm is suspect of AM and 0 otherwise
Pre-acquisition REM suspected	Pre-acq REM	A dummy coded 1 if the observing firm is suspect of REM and 0 otherwise
Pre-acquisition EM suspected (EM)	Pre-acq EM (EM)	A dummy coded 1 if either "Pre-acq AM" or "Pre-acq REM" takes value of 1 and 0 otherwise
Pure cash payment M&A deals	100% CASH	A dummy coded 1 if acquirer uses pure cash payment and 0 otherwise
Pure stock payment M&A deals	100% STOCK	A dummy coded 1 if acquirer uses only stock exchange and 0 otherwise
Mixed payment M&A deals	Mixed deals	A dummy coded 1 if acquisition has both cash payment and stock exchange
Acquirer's Total Assets	Total Assets	The log of acquiring firm's total assets (CRSP)
Successive deal	Successive deal	An acquisition is regarded as successive deal if acquirer has at least one acquisition during three years before the observing M&A deal (SDC)

CHAPITRE 4: ACQUIRING FIRM'S EARNINGS MANAGEMENT BEHAVIORS THROUGH CLASSIFICATION SHIFTING

ABSTRACT

This paper observes acquiring firm's earnings management (EM) strategy through classification shifting. In a sample of U.S. public M&A deals between 1986 and 2013, we find that acquiring firms are likely to manage their earnings though this EM method in both before and after acquisition. Thus, different EM patterns are noted according to acquisition's method of payment. Results also indicates that the mixed payment acquirers exhibit an important degree of this EM behaviors.

Keywords: mergers and acquisitions, earnings management, classification shifting, method of payment

JEL codes: G14 G34 M41

1. Introduction

This paper observes acquiring firm's earnings management (EM) behaviors through classification shifting, in a context of Merger and Acquisition (M&A) operations. The classification shifting is one of the EM methods, mentioned in McVay (2006), which increase earnings by shifting core expenses to special items, while the latter is inclined to be excluded from earnings. The conception of this method is firstly noted in Barnea, Ronen et al. (1976), which denoted as classificatory smoothing of income with extraordinary items.

Previous literature states that the stock-for-stock acquiring firms are likely to use accruals management (AM) before acquisition (Erickson and Wang (1996); Louis (2004)). This pre-acquisition AM strategy aims to increase earnings before acquisition, mislead the market valuation and boost the stock price. In this way, acquiring firm benefits from the exchange parity.

Similar to AM, the EM through classification shifting can also achieve this goal. The difference is the method of the classification shifting manages earnings through core earnings instead of accruals. After the passage of the Sarbanes-Oxley Acts, the related cost of being securitized by the external auditor and regulator increased. That makes more difficult to manage earnings through AM. Besides, considering the pre-acquisition AM strategy has been revealed to the public for more than two decades and negative reversal effect is noted in the literature (Louis (2004)), the AM strategy tend to be less efficient in recent years. Therefore, manage though the classification shifting may become a suitable alternative way.

The first purpose of this paper is to observe the behaviors of EM through classification shifting, in both pre- and post-acquisition years. Second, we investigate whether the way of using this kind of EM varies with acquisition's method of payment.

We use a dataset of public firms in the U.S market during the period 1983 - 2016. We investigate the acquiring firms' EM behaviors through classification shifting, using the core earnings model in McVay (2006). The observing period is seven-year M&A period around its announcement (therefore the M&A sample years range from 1986 to 2013), with a sample of U.S. public M&A deals.

The main contributions of this paper are as follows: first, this paper provide evidence on the use of EM through classification shifting for the acquiring firms during M&A years. These kind of EM can be found both before and after acquisition. Second, different EM patterns are shown according to the form of payment methods acquirers. Third, an important degree of this behaviors are noted among the mixed payment firms, while this payment method firms are rarely concerned in the previous study.

The rest of this paper is organized as following: the related literature and hypothesis are in Section 2, data and methodology are described in Section 3, Section 4 gives empirical results, Section 5 is the robustness check and Section 6 concludes.

2. Related literature and hypothesis development

2.1 Earnings management through classification shifting

Recent study provides evidence on the EM through the classification shifting behaviors (McVay (2006); Siu and Faff (2013)). The previous one provides evidence on firm's earnings management behaviors through classification shifting. By means of shifting part of core expenses to special items, the core earnings increase. Managers are likely to use this earnings management method to meet and beat analysts' forecast.

The second literature shows this EM through classification shifting is likely to be used in an equity issuance context. Plus, this paper also investigates the choice between managing earnings through the classification shifting and through accruals for the Seasoned equity offering (SEO) concerned firms. It indicates the probability of using the classification shifting method increase with the cost of scrutiny.

Erickson and Wang (1996) and Louis (2004) both show that the Stock-for-Stock acquiring firms have incentive to manage earnings through accruals management (AM) before acquisition. These EM behaviors help to boost the reported earnings before acquisition and help to raise the stock price. In this way, the acquiring firms could benefit the exchange parity of the acquisition. And the above literature shows the classification shifting EM has similar effect as AM. Furthermore, after the passage of Sarbanes-Oxley Acts, which makes more difficult to manage earnings through the accounting way and also increase the cost of scrutiny. In this circumstance, this alternative EM method through classification shifting could be favored by the acquiring firms.

The first main hypothesis aims to observe whether the M&A acquirers use pre- or post-acquisition acquisition EM through classification shifting.

HYPOTHESIS 1: Acquiring firms are likely to manager their earnings through classification shifting.

2.2 Method of payment of M&A and earnings management around acquisition

One important feature of acquisition, is its method of payment. That would significantly affect financial statement strategy of the acquiring firm and also affect its EM behaviors. Louis (2004) observes both pure stock and pure cash payment acquiring firms. Significant AM behaviors are noted among the stock payment firms while no significant sign of this kind of EM strategy is found among the cash payment ones.

Previous literature indicates pure stock payment firms are likely to overstate earnings before acquisition. And as mentioned, the EM through classification shifting is an alternative EM choice of AM, which is likely to be find among these pure stock payment firms. For the cash payment ones, as major acquisition often brings important expenses to the acquirer, they may also use EM to smooth earnings or (and) the cash-flow statement. In a scenario that AM may be constrained after the passage of SOX, REM is costlier than AM (Kothari, Mizik et al. (2016)) and brings significant negative impact on firm's future performance (Cohen and Zarowin (2010); Kothari, Mizik et al. (2016)), the classification shifting method could be very attractive for the cash payment acquirers. As for the mixed payment acquirers, the incentive to use EM could be mixed with both pure stock and pure cash payment firms.

Therefore, the second purpose of this paper is to investigate whether the classification shifting EM pattern varies according to acquisition's payment method.

HYPOTHESIS 2: *Acquiring firm's classification shifting behaviors varies according to the method of payment of M&A.*

3. Data and methodology

3.1 M&A Sample description

Our M&A sample is obtained from the Securities Data Company (SDC) database, which consists of completed M&A deals between 1986 and 2013. The observation period is seven years for each M&A deal (three years before and after), therefore the concerned firms' financial and accounting data period is from 1983 to 2016. This M&A sample excludes financial institutions (SIC 6000–6999), regulated industries (SIC 4400–5000), and agriculture and fishing sectors (100-900). The sample also requires the following selection criteria:

- The acquiring and the target firms are listed U.S. firms,
- The deal size is greater than 1 million dollars,
- The deal is successfully completed,
- The acquiring firm holds less than 50% of the target shares before and 100% after acquisition,
- The acquirer has necessary data on the CRSP/Compustat database provided by Wharton Research Data Services (WRDS) to access the concerned estimation models.

TABLE 1

Panel A: Distribution of M&A by year

Year	Number of deals	Year	Number of deals	Year	Number of deals
1986	92	1996	156	2006	93
1987	81	1997	186	2007	100
1988	88	1998	236	2008	64
1989	68	1999	215	2009	65
1990	52	2000	203	2010	71
1991	48	2001	153	2011	40
1992	51	2002	95	2012	56
1993	68	2003	91	2013	45
1994	115	2004	94		
1995	152	2005	98		

Panel B: Distribution of M&A by industry	**Observations**
(10-14) Mining, oil, gas	174
(15-17) Construction	23
(20-39) Manufacturing	1375
(40-49) Transport, utilities, communication	272
(50-51) Wholesale	93
(52-59) Retail trade	168
(70-89) Services	771
Total	**2876**

Panel C: Distribution of M&A deals by its payment method	**Observations**
Pure cash payment deals	915
Pure stock-for-Stock deals	1049
Mixed payment deals	912
Total	**2876**

Table 1 reports descriptive statistics of the M&A sample. We get 2,876 M&A deals for the full M&A sample; among these acquisitions, 915 and 1,049 deals are paid by 100% cash and 100% stock-exchange and 912 acquisitions are paid through mixed payment deals (part of cash and stock-exchange). The mixed payment deals take an important part (around 31% in quantity) among all the acquisitions.

3.2 Measuring Classification shifting

To measure firm's classification shifting behaviors, we apply a cross-sectional industry core earnings (CE) model, which follows MacVay (2006). This model hypothesize that company manages earnings through shifting core expenses to special items. The model estimates the normal level of core earnings through its lagged value and also the following effects: the capacity of generating revenues, the level of the operating accruals and company's sales during the last two years.

The model estimates the predicted value of core earnings and the difference in core earnings by year and industry (based on the 2-digit SIC codes), which allows the coefficients to be time variant and control the economic changes in industry-level.

$$CE_t = \beta_0 + \beta_1 * CE_{t-1} + \beta_2 * ATO_t + \beta_3 * Acc_{t-1} + \beta_4 * Acc_t + \beta_5 * Sales_t + \beta_6 * Neg\Delta Sales_t + \varepsilon_t$$

$$\Delta CE_t = \phi_0 + \phi_1 * CE_{t-1} + \phi_2 * \Delta CE_{t-1} + \phi_3 * ATO_t + \phi_4 * Acc_{t-1} + \phi_5 * Acc_t + \phi_6 * \Delta Sales_t + \phi_7 * Neg\Delta Sales_t + \upsilon_t$$

, where CE denotes for the Core Earnings, calculated as (Operating Income Before Depreciation$_t$)/Salest; ΔCE_t denotes the Change in CE, calculated as CE_t - CE_{t-1}; ATO denotes for the Asset Turnover ratio, calculated as Sales$_t$/((NOA_t+NOA_{t-1})/2), where NOA (Net Operating Assets) is calculated as Operating Assets minus Operating Liabilities. Operating Assets is computed as (Total Assets – Cash and short-term investments);

Operating Liabilities is computed as (Total Assets – Total Debt – Book value of Common and Preferred Equity – Minority Interests). Average NOA is required to be positive. Acc_t denotes Operating accruals, calculated as (Net Income before extraordinary items$_t$ – cash from operations$_t$)/Sales$_t$; $\Delta Sales_t$ denotes the Percent change in Sales, calculated as (Sales$_t$ - Sales$_{t-1}$)/Sales$_{t-1}$ and NegΔSales$_t$ denotes Percent change in Sales, which equals $\Delta Sales_t$ if $\Delta Sales_t$ is less than 0, and 0 otherwise.

Table 2: Descriptive statistics for the CE models

Descriptive Statistics	**Mean**	**Median**	**Standard Deviation**	**25%**	**75%**
Sales	2301.875	162.150	12098.840	34.585	842.047
Percent change in sales	14.4%	7.8%	39.2%	-3.0%	22.1%
Core Earnings	0.031	0.110	0.640	0.039	0.205
Difference in CE in t-1,t	0.001	0.000	0.249	-0.027	0.024
Unexpected CE	-0.002	0.002	0.230	-0.032	0.039
Unexpected change in CE	0.000	0.002	0.124	-0.027	0.033
Income Decreasing SI (in millions)	-15.245	0.000	72.795	-1.722	0.000
Income Decreasing SI excluding reconstruction cost (in millions)	-11.158	0.000	59.468	-1.000	0.000
Income Decreasing SI (as a percent of Sales)	2.3%	0.0%	12.8%	0.0%	0.8%
Income Decreasing SI excluding Reconstruction cost (as a percent of Sales)	2.0%	0.0%	11.6%	0.0%	0.5%
Accruals (scaled by Sales)	-0.130	-0.054	0.391	-0.139	-0.007
Asset Turnover Ratio	2.613	1.922	2.630	1.075	3.123

There are 100,799 observations available for each variable in the CE models. All these variables are winsorized at 1 and 99 percent.

The variable table (in appendix) shows the description of the concerned variables in the CE models and the summary statistics for these variables are reported in Table 2.

4. Empirical results

4.1 Classification shifting in the M&A years

In the first place, we apply the original CE model as in MacVay (2006), which focus on M&A firms. The observing window includes seven-years around each acquisition announcement (three years before and after).

$$UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \varepsilon_t$$

$$UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \upsilon_{t+1}$$

TABLE 3 Model of Unexpected Core Earnings - M&A sample

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special	**0.072*****	**-0.152*****	**0.268*****	**0.106*****	**0.169*****	**0.257*****	0.058*
Item	(0.027)	(0.050)	(0.045)	(0.033)	(0.021)	(0.028)	(0.034)
Constant	0.003	0.005	-0.008	-0.004	-0.027***	0.013***	0.015***
	(0.004)	(0.008)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)
R^2 adjusted	0.006	0.007	0.027	0.007	0.044	0.058	0.002
Observation	978	1113	1226	1376	1445	1388	1281

This table presents the results of the model of unexpected core earnings (UECE). UECE are the difference between reported change in core earnings and its predicted values (by year and industry), using the M&A sample: $UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \varepsilon_t$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number of observations for the sample before and after acquisition differ.

Table 3 Panel A shows clear signs of EM behaviors through classification shifting during the M&A years. Very significant and positive signs of CE level are observed from the year before the deal announcement till two years after acquisition. The degree of this EM behaviors is also important, these positive signs of special item is about 27% before acquisition, 10% at the acquisition year and range from 16.9% to 25.7% after acquisition. This CE level is much higher than which in the non-event years in MacVay (2006). This study indicates a positive CE level at approximately 2% using the same model for all Compustat firms during the year 1988 to 2003.

Plus, a negative and significant sign of special item (approximately 15%) is noted in the two years before acquisition. As mentioned in previous section, the classification shifting EM increases earnings by means of borrowing future earnings through shifting the core expenses. Similar as the accruals management, this kind of EM need to recover after usage. Since acquiring firm manager decide to engage this kind of EM, they could reverse the processes before a large-scare of using this EM, as a strategic reserve.

Besides, in the three year before and after the acquisition, though significant positive signs of special item are shown, the degree is much moderate (at about 5% to 7%), which are close to those in non-event years as indicated in MacVay (2006).

TABLE 4 Model of Unexpected change in Core Earnings - M&A sample

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**0.139*****	-0.026	0.011	**-0.057****	**-0.040*****	**-0.079*****	**-0.091*****
	(0.024)	(0.024)	(0.023)	(0.026)	(0.015)	(0.022)	(0.023)
Constant	0.002	0.005	-0.006	-0.011**	0.016***	0.013***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
R^2 adjusted	0.034	0.000	-0.001	0.003	0.005	0.009	0.014
Observation	928	1058	1175	1262	1296	1220	1098

This table presents the results of the model of unexpected change in core earnings (UEΔCE). UEΔCE are the difference between reported core earnings and its predicted values (by year and industry), using the M&A sample: $UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \upsilon_{t+1}$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number of observations for the sample before and after acquisition differ.

Table 4 Panel A show the results of difference in CE. A positive increase in CE at the three years before acquisition, which responses to the negative sign of CE in the next year. On the other hand, negative and significant signs are shown in the post-acquisition year. Plus, we observe that the sum of the degrees of these negative sign in difference of CE (-5.7%, -4%, -7.9% and 9.1%) is much less important than the increments in the CE level (10.6%, 16.9%, 25.7% and 5.8%). This result suggests acquiring firms mitigate the reverse in difference of CE with other ways.

The above analysis indicates that acquiring firms show clear sign of EM though classification shifting during the M&A years. However, they get two main limits. First, the observing sample includes only M&A concerned firm, which may cause the sample selection bias. Second, in the non-event years, this CE model also report significant signs

in special item (MacVay (2006)), which bring a mixed effect on the observed sign in a M&A scenario: the sign of special item includes two components, one from the non-event period as mentioned and the other from the acquisition.

Therefore, in the second place, a larger sample is included in the following analysis, which contains all Compustat firms, during M&A period. The purpose is to eliminate the sample selection bias and to detach the sign of EM behaviors due to acquisition from the mixed effect as well.

The acquiring firm's classification shifting behavior from the acquisition is captured through the interaction between special items and M&A firm-year dummy variables (x1 to x7, which stands for the three years before acquisition to three years after, respectively). The regression models are shown as follows.

$$UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \alpha_2 * M\&A\ \ year_t + \alpha_3 * \%SI_t * M\&A\ \ year_t + \varepsilon_t$$

$$UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \eta_2 * M\&A\ \ year_t + \eta_3 * \%SI_t * M\&A\ \ year_t + \upsilon_{t+1}$$

We expect these interactions to show significant signs in the years close to the deal announcement, which means acquiring firms have "extra" EM behaviors through the classification shifting during M&A years.

Table 5 Model of Unexpected Core Earnings – All Compustat sample

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**0.061***** **(0.006)**	**0.067***** **(0.006)**	**0.057***** **(0.006)**	**0.060***** **(0.006)**	**0.052***** **(0.007)**	**0.055***** **(0.006)**	**0.061***** **(0.006)**
M&A year	0.007 (0.008)	0.009 (0.007)	-0.004 (0.007)	0.000 (0.007)	-0.024*** (0.006)	0.017*** (0.007)	0.019*** (0.007)
M&A year & **Special item**	0.011 (0.050)	**-0.219***** **(0.042)**	**0.211***** **(0.043)**	0.046 (0.035)	**0.117***** **(0.022)**	**0.201***** **(0.038)**	-0.003 (0.041)
Constant	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)
R^2 adjusted	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Observation	86908	86908	86908	86908	86908	86908	86908

This table presents the results of the model of unexpected core earnings (UECE). UECE are the difference between reported change in core earnings and its predicted values (by year and industry), using all Compustat U.S. public firm sample: $UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \alpha_2 * M\&A\ \ year_t + \alpha_3 * \%SI_t * M\&A\ \ year_t + \varepsilon_t$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

Result in Table 5 Panel A shows positive and significant sign of special items (the values are approximately at level of 6% of sales) during all M&A years. These positive signs consist with those in MacVay (2006), which means the classification shifting is closely related the special items. Plus, significant signs are noted in the years around acquisitions, as predicted. Positive signs are found in the year before the deal announcement and also during the first two years after acquisitions. These positive signs are significant and strong (at approximately 20% before acquisition, 10% in the first post-acquisition year and 20% in the second, respectively). Results imply this EM behaviors during M&A years are important (at a level range from twice to three times than no-event years).

More interesting thing is, a negative and significant sign is observed in the two years before acquisition. The magnitude of this negative sign is just coincide with the positive sign in the next year, the year prior to the acquisition. This imply a preparation strategy of using classification shifting in the near future by the acquiring firms.

Table 6 Model of Unexpected change in Core Earnings – All Compustat sample

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**-0.020*** **	**-0.016*** **	**-0.017*** **	**-0.014*** **	**-0.015*** **	**-0.014*** **	**-0.014*** **
	(0.004)	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**
M&A year	0.001	0.005	-0.006*	-0.011***	0.016***	0.013***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
M&A year &	**0.159*** **	-0.010	0.028	-0.043*	-0.025	**-0.065*** **	**-0.077*** **
Special item	**(0.028)**	(0.025)	(0.024)	(0.023)	(0.016)	**(0.022)**	**(0.025)**
Constant	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Observation	75599	75599	75599	75599	75599	75599	75599

This table presents the results of the model of unexpected change in core earnings (UEΔCE). UEΔCE are the difference between reported core earnings and its predicted values (by year and industry), using all Compustat U.S. public firm sample: $UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \eta_2 * M\&A\ \ year_t + \eta_3 * \%SI_t * M\&A\ \ year_t + \upsilon_{t+1}$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively.

On the other hand, we observed negative signs in the UEΔCE model, with follow the similar rhythm as those in the model of UECE (Table 6 Panel A). While this negative (reversal) sign in difference of CE are more significantly observed after acquisition. Moreover, the degree of this reversal sign seems less important when compared with those positive signs in CE level (approximately -4% to -6% in difference of CE versus 10% to 20% in CE level). Result also suggests acquiring firms disperse part of the previous CE increment through other ways.

4.2 Subsample analysis of payment method of acquisition

Previous section observes the classification shifting behaviors among full M&A sample. Hypothesis 3 predict that this EM behavior may differ according to M&A's method of payment.

TABLE 3 Model of Unexpected Core Earnings - M&A sample

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special	**0.273*** **	**0.122*** **	-0.052	**0.120** **	**0.115*** **	0.060	**0.321*** **
Item	(0.063)	(0.031)	(0.032)	(0.047)	(0.026)	(0.038)	(0.045)
Constant	0.017***	0.008	0.012**	0.003	-0.008	0.021***	0.014***
	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)
R^2 adjusted	0.044	0.033	0.004	0.010	0.032	0.003	0.087
Observation	384	422	474	518	554	553	540
Panel C: Pure stock payment deals							
Special	**0.106** **	0.125*	**0.443*** **	0.088*	**0.164*** **	**0.328*** **	0.067
Item	(0.054)	(0.074)	(0.080)	(0.047)	(0.031)	(0.036)	(0.061)
Constant	-0.013*	-0.014	-0.030**	-0.010	-0.039***	0.005	0.025**
	(0.007)	(0.016)	(0.015)	(0.012)	(0.013)	(0.008)	(0.012)
R^2 adjusted	0.007	0.004	0.054	0.004	0.044	0.129	0.000
Observation	406	474	530	600	611	548	473
Panel D: Pure mixed payment deals							
Special	**0.093*** **	**-0.799*** **	**0.429*** **	**0.507*** **	**0.325*** **	**0.388*** **	**0.126** **
Item	(0.035)	(0.120)	(0.117)	(0.062)	(0.043)	(0.049)	(0.052)
Constant	0.007	0.014	-0.020	-0.014	-0.031***	0.011	0.004
	(0.007)	(0.017)	(0.014)	(0.009)	(0.009)	(0.009)	(0.009)
R^2 adjusted	0.015	0.089	0.025	0.105	0.090	0.101	0.009
Observation	397	443	484	553	582	557	516

Table 5 Model of Unexpected Core Earnings – All Compustat sample

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	**0.061*** **	**0.067*** **	**0.057*** **	**0.060*** **	**0.052*** **	**0.055*** **	**0.061*** **
	(0.006)	**(0.006)**	**(0.006)**	**(0.006)**	**(0.007)**	**(0.006)**	**(0.006)**
M&A year	0.030**	0.019	0.002	0.010	0.002	0.019*	0.021*
	(0.013)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)
M&A year &	0.009	**-0.216*** **	**0.204*** **	0.043	**0.096*** **	**0.223*** **	0.020
Special item	(0.049)	**(0.042)**	**(0.043)**	(0.034)	**(0.021)**	**(0.037)**	(0.040)
Constant	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Observation	86908	86908	86908	86908	86908	86908	86908

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel C: Pure stock payment deals							
Special Item	**0.061*** **	**0.066*** **	**0.057*** **	**0.060*** **	**0.052*** **	**0.055*** **	**0.061*** **
	(0.006)	**(0.006)**	**(0.006)**	**(0.006)**	**(0.007)**	**(0.006)**	**(0.006)**
M&A year	-0.013	0.011	-0.017	-0.011	-0.040***	0.009	0.024**
	(0.013)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)
M&A year &	0.029	**-0.213*** **	**0.216*** **	0.056	**0.117*** **	**0.220*** **	0.009
Special item	(0.049)	**(0.042)**	**(0.043)**	(0.035)	**(0.022)**	**(0.038)**	(0.041)
Constant	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Observation	86908	86908	86908	86908	86908	86908	86908
Panel D: Pure mixed payment deals							
Special Item	**0.061*** **	**0.066*** **	**0.057*** **	**0.060*** **	**0.052*** **	**0.055*** **	**0.061*** **
	(0.006)	**(0.006)**	**(0.006)**	**(0.006)**	**(0.007)**	**(0.006)**	**(0.006)**
M&A year	0.003	-0.005	0.004	0.002	-0.029***	0.021*	0.008
	(0.013)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)
M&A year &	0.020	**-0.206*** **	**0.204*** **	0.046	**0.117*** **	**0.221*** **	0.024
Special item	(0.049)	**(0.041)**	**(0.043)**	(0.035)	**(0.022)**	**(0.037)**	(0.040)
Constant	-0.004***	-0.004***	-0.004***	-0.004***	-0.003***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Observation	86908	86908	86908	86908	86908	86908	86908

Panel A of Table 3 and Table 5 present the results of the model of unexpected core earnings (UECE) in a sample of M&A and all Compustat, respectively. UECE are the difference between reported change in core earnings and its predicted values (by year and industry), using the M&A sample: $UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \varepsilon_t$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number of observations (in Table 3) for the sample before and after acquisition differ.

Panel B, C and D in Table 3 and Table 5 present the CE level for pure cash, pure stock and mixed payment acquiring firms during the M&A years, using the concerned acquisition payment method subsample.

During the seven observing years around acquisition, pure cash payment acquirers' exhibit significant sign of EM behaviors, in an intermittent way. In general, special item reports positive and significant signs (27.3%, 12.2%, -5.2%, 12%, 11.5%, 6% and 32.1% during the years around acquisition in Table 3 panel B, C and D). Since three-year before acquisition, a non-significant sign follows two positive ones. Similar signs are shown in Table 5 panel B, C and D.

TABLE 4 Model of Unexpected change in Core Earnings - M&A sample

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	0.000	**-0.055****	**0.053****	0.053	-0.031	**0.134*****	0.061
	(0.058)	(0.023)	(0.024)	(0.040)	(0.019)	(0.028)	(0.039)
Constant	0.009*	0.014***	0.002	-0.005	0.013***	0.010***	0.010**
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
R^2 adjusted	-0.003	0.011	0.009	0.002	0.003	0.043	0.003
Observation	364	403	456	496	516	505	481
Panel C: Pure stock payment deals							
Special Item	0.051	-0.035	0.004	-0.051	**-0.054****	0.029	**-0.120*****
	(0.046)	(0.035)	(0.038)	(0.036)	(0.022)	(0.034)	(0.040)
Constant	0.004	0.001	-0.009	-0.016**	0.020***	0.020**	0.021***
	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)
R^2 adjusted	0.001	-0.000	-0.002	0.002	0.009	-0.001	0.019
Observation	376	447	504	527	532	458	409
Panel D: Pure mixed payment deals							
Special Item	**0.195*****	0.052	0.036	0.013	0.007	**-0.243*****	**-0.072****
	(0.029)	(0.044)	(0.049)	(0.044)	(0.029)	(0.032)	(0.034)
Constant	0.000	0.001	-0.005	-0.010	0.018***	0.012**	0.021***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
R^2 adjusted	0.105	0.001	-0.001	-0.002	-0.002	0.104	0.008
Observation	380	421	465	508	538	502	431

Table 6 Model of Unexpected change in Core Earnings – All Compustat sample

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	**-0.020*****	**-0.016*****	**-0.017*****	**-0.014*****	**-0.015*****	**-0.014*****	**-0.014*****
	(0.004)	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**
M&A year	0.002	0.012*	0.005	0.001	0.013**	0.013**	0.013**
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
M&A year &	**0.160*****	-0.010	0.016	**-0.065*****	-0.010	**-0.047****	**-0.056****
Special item	**(0.027)**	(0.024)	(0.023)	**(0.022)**	(0.015)	**(0.022)**	**(0.024)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Observation	75599	75599	75599	75599	75599	75599	75599

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel C: Pure stock payment deals							
Special Item	**-0.020*** **	**-0.016*** **	**-0.017*** **	**-0.014*** **	**-0.015*** **	**-0.014*** **	**-0.014*** **
	(0.004)	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**
M&A year	-0.001	0.001	-0.013**	-0.019***	0.016***	0.024***	0.014**
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
M&A year &	**0.162*** **	-0.005	0.027	-0.044*	-0.015	**-0.066*** **	**-0.062** **
Special item	**(0.027)**	(0.024)	(0.023)	(0.023)	(0.016)	**(0.022)**	**(0.024)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Observation	75599	75599	75599	75599	75599	75599	75599
Panel D: Pure mixed payment deals							
Special Item	**-0.020*** **	**-0.016*** **	**-0.017*** **	**-0.014*** **	**-0.015*** **	**-0.014*** **	**-0.014*** **
	(0.004)	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**	**(0.004)**
M&A year	0.003	0.001	-0.009	-0.012**	0.017***	0.002	0.019***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
M&A year &	**0.160*** **	-0.005	0.022	**-0.059*** **	-0.012	**-0.044** **	**-0.060** **
Special item	**(0.027)**	(0.024)	(0.023)	**(0.022)**	(0.015)	**(0.022)**	**(0.024)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Observation	75599	75599	75599	75599	75599	75599	75599

Table 4 and Table 6 present the model of unexpected change in core earnings (UEΔCE) in a sample of M&A and all Compustat, respectively. Panel B, C and D of Table 4 and Table 6 show the results of subsample analysis of M&A payment method. UEΔCE are the difference between reported core earnings and its predicted values (by year and industry), using the M&A sample: $UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \upsilon_{t+1}$. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number (in table 4) of observations for the sample before and after acquisition differ.

However, in the difference of CE model, we do not observe the corresponding degree of the negative variation (Panel B in Table 4 and 6). The special item shows negative sign only in the two-year before acquisition. This may because the cash payment acquisition brings important special items, especially after acquisition.

For the stock and mixed payment acquiring firms, similar results are found in both CE level and difference in CE analysis (Panel C and D in Table 3 and 5). Unlike the cash payment acquirers, these firms are more likely to use CE during the year before acquisition and in the first two years after acquisition. On the other side, negative and significant signs are shown during the post-acquisition years (Panel C and D in Table 4 and 6).

5. Robustness check

In the second part of classification shifting analysis, a sample of all Compustat firms are included. This full sample analysis solves the sample selection problem and remove the noise of the significant sign of EM behaviors in the non-event years.

As acquisition often bring important expenses to the acquiring firm, which would increase the special item during M&A years and bring bias to the classification shifting analysis. In order to control this effect, we adjust the special items by excluding the reconstruction cost during acquisition years from the special item and redo the CE models.

TABLE 7 Model of Unexpected Core Earnings - M&A sample

-reconstruction cost controlled

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**0.076****	**-0.193*****	**0.277*****	**0.093****	**0.233*****	**0.290*****	**0.074****
	(0.030)	**(0.056)**	**(0.047)**	**(0.037)**	**(0.024)**	**(0.030)**	**(0.036)**
Constant	0.004	0.005	-0.007	-0.002	-0.030***	0.014***	0.014***
	(0.004)	(0.008)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)
R^2 adjusted	0.005	0.010	0.027	0.004	0.061	0.061	0.003
Observation	978	1113	1226	1376	1445	1388	1281

TABLE 8 Model of Unexpected change in Core Earnings - M&A sample

-reconstruction cost controlled

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**0.137*****	-0.032	0.005	**-0.066****	**-0.050*****	**-0.104*****	**-0.097*****
	(0.027)	(0.027)	(0.024)	**(0.029)**	**(0.016)**	**(0.025)**	**(0.024)**
Constant	0.002	0.005	-0.006	-0.011**	0.016***	0.014***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
R^2 adjusted	0.026	0.000	-0.001	0.003	0.006	0.013	0.014
Observation	928	1058	1175	1262	1296	1220	1098

Table 9 Model of Unexpected Core Earnings – All Compustat sample

-reconstruction cost controlled

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**0.109*** **	**0.115*** **	**0.104*** **	**0.109*** **	**0.098*** **	**0.103*** **	**0.109*** **
	(0.007)	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**
M&A year	0.008	0.010	-0.003	0.002	-0.026***	0.019***	0.019***
	(0.008)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.007)
M&A year &	-0.033	**-0.308*** **	**0.173*** **	-0.016	**0.134*** **	**0.187*** **	-0.035
Special item	(0.056)	**(0.047)**	**(0.045)**	(0.039)	**(0.025)**	**(0.042)**	(0.044)
Constant	-0.005***	-0.005***	-0.004***	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R^2 adjusted	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Observation	86908	86908	86908	86908	86908	86908	86908

Table 10 Model of Unexpected change in Core Earnings – All Compustat sample

-reconstruction cost controlled

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel A : Full M&A sample							
Special Item	**-0.032*** **	**-0.028*** **	**-0.029*** **	**-0.026*** **	**-0.027*** **	**-0.025*** **	**-0.026*** **
	(0.005)	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
M&A year	0.002	0.005	-0.006	-0.011***	0.016***	0.014***	0.015***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
M&A year &	**0.169*** **	-0.004	0.034	-0.040	-0.022	**-0.078*** **	**-0.071*** **
Special item	**(0.031)**	(0.028)	(0.025)	(0.026)	(0.017)	**(0.025)**	**(0.026)**
Constant	0.000	0.000	0.000	0.001	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.001	0.001	0.001	0.001
Observation	75599	75599	75599	75599	75599	75599	75599

Table 7 and 9 presents the results of the model of unexpected core earnings (UECE) in a sample of M&A acquirers and all Compustat firms. Table 8 and 10 present the results of the model of unexpected change in core earnings (UEΔCE) for the above two sample, respectively. UECE are the difference between reported change in core earnings and its predicted values (by year and industry), using the M&A sample: $UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \varepsilon_t$. UEΔCE are the difference between reported core earnings and its predicted values (by year and industry), using the M&A sample: $UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \upsilon_{t+1}$.

In this model, the reconstruction cost is excluded from the special items. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number of observations (in Table 7 and 8) for the sample before and after acquisition differ.

After controlling the reconstruction cost, the Panel A in Table 7, Table 8, Table 9 and Table 10 show similar sign in special item in the full sample analysis, for both CE level and difference in CE model. Results indicate significant the classification EM behaviors. That also illustrates that the significant signs of special item are not come from the reconstruction cost of acquisition but from the manager's decision.

TABLE 7 Model of Unexpected Core Earnings - M&A sample

-reconstruction cost controlled

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	**0.235***** **(0.069)**	**0.128***** **(0.036)**	-0.046 (0.033)	0.063 (0.050)	**0.123***** **(0.030)**	**0.046** **(0.041)**	**0.266***** **(0.047)**
Constant	0.019*** (0.006)	0.008 (0.006)	0.011** (0.005)	0.005 (0.005)	-0.007 (0.005)	0.022*** (0.004)	0.018*** (0.005)
R^2 adjusted	0.027	0.026	0.002	0.001	0.028	0.000	0.053
Observation	384	422	474	518	554	553	540
Panel C: Pure stock payment deals							
Special Item	**0.106*** **(0.055)**	**0.139*** **(0.084)**	**0.474***** **(0.083)**	0.067 (0.054)	**0.240***** **(0.036)**	**0.363***** **(0.040)**	0.042 (0.065)
Constant	-0.013* (0.007)	-0.014 (0.016)	-0.031** (0.015)	-0.008 (0.012)	-0.045*** (0.013)	0.007 (0.008)	0.027** (0.012)
R^2 adjusted	0.006	0.004	0.057	0.001	0.066	0.132	-0.001
Observation	406	474	530	600	611	548	473
Panel D: Pure mixed payment deals							
Special Item	**0.109***** **(0.041)**	**-0.923***** **(0.132)**	**0.406***** **(0.124)**	**0.509***** **(0.063)**	**0.343***** **(0.045)**	**0.440***** **(0.053)**	**0.178***** **(0.056)**
Constant	0.007 (0.007)	0.014 (0.017)	-0.018 (0.014)	-0.012 (0.009)	-0.031*** (0.009)	0.011 (0.009)	0.003 (0.009)
R^2 adjusted	0.015	0.098	0.020	0.103	0.091	0.109	0.017
Observation	397	443	484	553	582	557	516

TABLE 8 Model of Unexpected change in Core Earnings - M&A sample

-reconstruction cost controlled

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	-0.033 (0.061)	**-0.068**** **(0.027)**	0.045* (0.025)	0.034 (0.043)	-0.042* (0.022)	**0.127***** **(0.030)**	0.055 (0.040)
Constant	0.010* (0.005)	0.014*** (0.005)	0.003 (0.004)	-0.004 (0.004)	0.013*** (0.004)	0.011*** (0.003)	0.011*** (0.004)
R^2 adjusted	-0.002	0.013	0.005	-0.001	0.005	0.032	0.002
Observation	364	403	456	496	516	505	481
Panel C: Pure stock payment deals							
Special Item	0.039 (0.048)	-0.045 (0.040)	-0.003 (0.040)	-0.058 (0.041)	**-0.068***** **(0.025)**	0.002 (0.038)	**-0.131***** **(0.043)**
Constant	0.005 (0.007)	0.001 (0.007)	-0.009 (0.007)	-0.016** (0.008)	0.020*** (0.007)	0.022*** (0.008)	0.020** (0.008)
R^2 adjusted	-0.001	0.001	-0.002	0.002	0.012	-0.002	0.020
Observation	376	447	504	527	532	458	409
Panel D: Pure mixed payment deals							
Special Item	**0.216***** **(0.034)**	0.056 (0.048)	0.036 (0.051)	0.001 (0.045)	0.006 (0.031)	**-0.262***** **(0.035)**	**-0.077**** **(0.037)**
Constant	0.000 (0.006)	0.001 (0.006)	-0.004 (0.006)	-0.009 (0.006)	0.018*** (0.006)	0.011* (0.006)	0.020*** (0.006)
R^2 adjusted	0.095	0.001	-0.001	-0.002	-0.002	0.101	0.008
Observation	380	421	465	508	538	502	431

Table 9 Model of Unexpected Core Earnings – All Compustat sample

-reconstruction cost controlled

UECE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	**0.109*** **	**0.115*** **	**0.104*** **	**0.109*** **	**0.099*** **	**0.102*** **	**0.109*** **
	(0.007)	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**
M&A year	0.031**	0.020	0.004	0.012	0.001	0.021*	0.022*
	(0.013)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)
M&A year &	-0.033	**-0.303*** **	**0.168*** **	-0.016	**0.107*** **	**0.212*** **	-0.010
Special item	(0.055)	**(0.046)**	**(0.044)**	(0.038)	**(0.024)**	**(0.041)**	(0.043)
Constant	-0.005***	-0.005***	-0.005***	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Observation	86908	86908	86908	86908	86908	86908	86908
Panel C: Pure stock payment deals							
Special Item	**0.109*** **	**0.115*** **	**0.104*** **	**0.109*** **	**0.099*** **	**0.102*** **	**0.109*** **
	(0.007)	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**
M&A year	-0.012	0.013	-0.016	-0.008	-0.043***	0.011	0.025**
	(0.013)	(0.012)	(0.011)	(0.011)	(0.010)	(0.011)	(0.012)
M&A year &	-0.012	**-0.302*** **	**0.180*** **	-0.004	**0.133*** **	**0.207*** **	-0.022
Special item	(0.055)	**(0.047)**	**(0.045)**	(0.039)	**(0.025)**	**(0.042)**	(0.044)
Constant	-0.005***	-0.005***	-0.004***	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Observation	86908	86908	86908	86908	86908	86908	86908
Panel D: Pure mixed payment deals							
Special Item	**0.109*** **	**0.115*** **	**0.104*** **	**0.109*** **	**0.099*** **	**0.102*** **	**0.109*** **
	(0.007)	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**	**(0.007)**
M&A year	0.004	-0.004	0.006	0.004	-0.030***	0.022**	0.009
	(0.013)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)
M&A year &	-0.022	**-0.293*** **	**0.167*** **	-0.013	**0.115*** **	**0.209*** **	-0.008
Special item	(0.055)	**(0.046)**	**(0.044)**	(0.038)	**(0.024)**	**(0.041)**	(0.043)
Constant	-0.005***	-0.005***	-0.005***	-0.005***	-0.004***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
R2 adjusted	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Observation	86908	86908	86908	86908	86908	86908	86908

Table 10 Model of Unexpected change in Core Earnings – All Compustat sample

-reconstruction cost controlled

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel B : Pure cash payment deals							
Special Item	**-0.032*** **	**-0.028*** **	**-0.029*** **	**-0.026*** **	**-0.028*** **	**-0.026*** **	**-0.026*** **
	(0.005)	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
M&A year	0.003	0.011*	0.005	0.000	0.013**	0.013**	0.013**
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
M&A year &	**0.171*** **	-0.003	0.023	**-0.064*** **	-0.005	**-0.059** **	**-0.051** **
Special item	**(0.030)**	(0.027)	(0.024)	**(0.024)**	(0.017)	**(0.024)**	**(0.026)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.001	0.001	0.001	0.001
Observation	75599	75599	75599	75599	75599	75599	75599

UEΔCE	(1) -3	(2) -2	(3) -1	(4) M&A	(5) +1	(6) +2	(7) +3
Panel C: Pure stock payment deals							
Special Item	**-0.032*** **	**-0.028*** **	**-0.029*** **	**-0.026*** **	**-0.028*** **	**-0.026*** **	**-0.026*** **
	(0.005)	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
M&A year	-0.001	0.001	-0.013**	-0.019***	0.016***	0.025***	0.013*
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
M&A year &	**0.172*** **	0.002	0.033	-0.041	-0.012	**-0.080*** **	**-0.057** **
Special item	**(0.030)**	(0.027)	(0.025)	(0.025)	(0.017)	**(0.025)**	**(0.026)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.001	0.001	0.001	0.001	0.001
Observation	75599	75599	75599	75599	75599	75599	75599
Panel D: Pure mixed payment deals							
Special Item	**-0.032*** **	**-0.028*** **	**-0.029*** **	**-0.026*** **	**-0.028*** **	**-0.026*** **	**-0.026*** **
	(0.005)	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.005)**
M&A year	0.003	0.001	-0.009	-0.013**	0.017***	0.002	0.019***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
M&A year &	**0.170*** **	0.002	0.028	**-0.057** **	-0.008	**-0.057** **	**-0.056** **
Special item	**(0.030)**	(0.027)	(0.024)	**(0.025)**	(0.017)	**(0.024)**	**(0.026)**
Constant	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R2 adjusted	0.001	0.000	0.000	0.001	0.001	0.001	0.001
Observation	75599	75599	75599	75599	75599	75599	75599

Table 7 and 9 presents the results of the subsample analysis of model of unexpected core earnings (UECE) in a sample of M&A acquirers and all Compustat firms. Table 8 and 10 present the results of the model of unexpected change in core earnings (UEΔCE) for the above two sample, respectively. These subsample analysis of M&A payment methods are shown in Pane B, C and D, for the pure cash, pure stock and mixed payment deals, respectively. UECE are the difference between reported change in core earnings and its predicted values (by year and industry), using the M&A sample: $UECE_t = \alpha_0 + \alpha_1 * \%SI_t + \varepsilon_t$. UEΔCE are the difference between reported core earnings and its predicted values (by year and industry), using the M&A sample: $UE\Delta CE_{t+1} = \eta_0 + \eta_1 * \%SI_t + \upsilon_{t+1}$.

In this model, the reconstruction cost is excluded from the special items. All variables are winsorized at 1 and 99 percent. Standard errors in parentheses; *, **, and *** represent significance levels of 0.10, 0.05, and 0.01, respectively. Because of data availability and to avoid a substantial decrease in the number of observations, we retain an observation if the firm has available data for either the pre- or post-acquisition years (the strict sample provides similar results). Therefore, the number of observations (in Table 7 and 8) for the sample before and after acquisition differ.

Besides, similar signs are noted for the acquisition payment method subsample (Panel B, C and D in Table 7 to Table 10) as in the previous CE models. These results also confirm that noise from the reconstruction cost of acquisition do not alter previous results.

6. Conclusion

This paper investigates acquiring firm's EM behaviors through the classification shift during M&A years. It contributes to the literature mainly as follows.

First, it provides evidence that acquiring firms are likely to use classification shifting during M&A period, both before and after acquisition. And this kind of behaviors can be found in all forms of acquisition payment method.

Second, among different method of payment acquirers, similar EM pattern is noted for the pure stock and mixed payment firms. Their EM behaviors are mainly in the year before acquisition and first two years after acquisition. Additionally, although the mixed payment firms are rarely being concerned in the previous study, we find that the mixed payment acquirers exhibit a much higher degree of this EM than the other payment method ones.

Third, the classification shifting behaviors of pure cash payment acquirers are likely to be found through all the M&A period, with intermittent rest year after each two years' usage.

In summary, this paper provides evidence on the use of EM through the classification shifting for all payment methods acquiring firms in the years around the acquisition. Results also suggest the way of using this EM and the degree of the EM behaviors vary according to acquisition payment methods.

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8. Appendix

Variables descriptions and data sources.

Variable	Definition
CE_t	Core Earnings, calculated as (Operating Income Before Depreciation$_t$) / Salest (Compustat)
ΔCE_t	Change in CE, calculated as CE_t - CE_{t-1}
$UECE_t$	Unexpected CE, calculated as the difference between reported CE and its predicted value, estimated by the model: $CE_t = \beta_0 + \beta_1 * CE_{t-1} + \beta_2 * ATO_t + \beta_3 * Acc_{t-1} + \beta_4 * Acc_t + \beta_5 * Sales_t + \beta_6 * Neg\Delta Sales_t + \varepsilon_t$
$UE\Delta CE_t$	Unexpected change in CE, calculated as the difference between reported change in CE and its predicted value, estimated by the model: $\Delta CE_t = \phi_0 + \phi_1 * CE_{t-1} + \phi_2 * \Delta CE_{t-1} + \phi_3 * ATO_t + \phi_4 * Acc_{t-1} + \phi_5 * Acc_t + \phi_6 * \Delta Sales_t + \phi_7 * Neg\Delta Sales_t + \upsilon_t$
%SI	Income-Decreasing Special Items (as a percentage of Sales$_t$), calculated as (Special Items$_t$ * (-1)) / Sales$_t$, when Special Items are income-decreasing and 0 otherwise. (Compustat)
$\Delta Sales_t$	Percent change in Sales, calculated as (Sales$_t$ - Sales$_{t-1}$) / Sales$_{t-1}$ (Compustat)
$Neg\Delta Sales_t$	Percent change in Sales, it equals $\Delta Sales_t$ if $\Delta Sales_t$ is less than 0, and 0 otherwise. (Compustat)
Acc_t	Operating accruals, calculated as (Net Income before extraordinary items$_t$ – cash from operations$_t$) / Sales$_t$ (Compustat)
ATO_t	Asset Turnover ratio, calculated as Sales$_t$ / ((NOA_t+NOA_{t-1})/2), where NOA (Net Operating Assets) is calculated as Operating Assets minus Operating Liabilities. Operating Assets is computed as (Total Assets – Cash and short-term investments); Operating Liabilities is computed as (Total Assets – Total Debt – Book value of Common and Preferred Equity – Minority Interests). Average NOA is required to be positive. (Compustat)
ΔATO_t	Change in Asset Turnover, calculated as ATO_t - $ATO_{t-1.}$ (Compustat)

CHAPITRE 5: CONCLUSION

1. Synthèse et contribution

Cette thèse s'articule autour de la qualité de l'information comptable de l'entreprise acquéreuse pendant les années autour de l'acquisition. Trois essais empiriques sont abordés à ce sujet et constituent les trois principaux chapitres : (1) pour les acquéreurs qui paient principalement en titre, elles gèrent les résultats pendant l'acquisition. Nous nous sommes intéressé à la stratégie à utiliser la gestion les résultats, entre la façon comptable et non-comptable et les effets apportés de ce choix sur la performance future ; (2) nous avons observé l'ensemble des combinaisons de la gestion comptable et non-comptable du résultat; examiné si ce comportement de gestion des résultats est corrélé avec la modalité de son paiement et la récurrence de leur acquisition et enquête les impacts liés à ces stratégies sur la performance après-acquisition ; (3) étudier la façon à gérer les résultats via le changement de la classification pour les acquéreurs pendant la période de l'acquisition.

Le premier essai étudie sur le marché américain, sur un échantillon de 1909 entreprises cotées américaines. Nous observons les comportements de la gestion des résultats, via la façon comptable ou non-comptable, pour ces entreprises pendant sept ans autour de l'acquisition. A travers un modèle de Probit à deux degrés avec la correction de Heckman, le choix entre ces deux façons à gérer les résultats pour les entreprises acquéreuses peut être étudié. Ensuite, nous utilisons un rendement anormal cumulatif de trois jours sur le marché boursier à mesurer la performance à court terme. Enfin, le rendement anormal boursier et le rendement anormal sur les actifs sont appliqués pour estimer la performance boursière et opérationnelle de l'entreprise à long-terme.

Ce premier essai empirique a apporté plusieurs contributions. Il montre que les façons comptables et non-comptable peuvent tous être utilisées par les acquéreurs pendant les années d'acquisition. Un effet de la substitution est noté entre ces deux façons de la gestion des résultats. La première (façon comptable) est plus utilisé que la deuxième par les acquéreurs non-répétitifs. Pourtant le passage de la loi Sarbanes-Oxley et la récurrence de l'acquisition apportent des impacts importants à faire passer la méthode non-comptable au lieu de comptable. Nous avons trouvé des effets différents pour les comportements de la gestion des résultats via comptable et non-comptable. Les comportements de la gestion des résultats via la façon non-comptable n'ont pas d'effet significatif sur la performance de l'entreprise après-acquisition. Par contre, un lien positif se trouve entre les comportements de la gestion des résultats via la façon comptable et la performance d'exploitation après l'acquisition. Et ces

comportements n'ont pas d'effet sur la performance boursière à court-terme, ni à long-terme. Ce résultat indique également une méconnaissance du marché financier sur les comportements de la gestion des résultats de l'entreprise acquéreuse.

Le deuxième essai se base sur la stratégie à s'engager et à gérer les résultats. Plus précisément, nous observons les différentes combinaisons de la gestion des résultats engagés. C'est-à-dire la façon comptable et non-comptable par tous les acquéreurs pendant les années avant et après l'opération.

Nous avons trouvé que la gestion des résultats n'est pas exclusive pour les entreprises qui paient en titre. Elle peut se trouver également dans les entreprises qui paient en liquidité et celles qui paient en une combinaison de titre et de liquidité. De plus, le choix de la combinaison entre les deux façons à gérer les résultats varie selon la modalité de paiement de l'acquisition. En plus de l'effet de la substitution entre la façon comptable et non-comptable, les résultats impliquent aussi un effet important de complémentarité. Cet effet est lié de deux façons : la disponibilité et le coût de la gestion des résultats. De plus, nous avons trouvé les effets des comportements de celle-ci sur la performance future. Si l'acquisition successive varie, l'effet positif est noté pour les acquéreurs non-répétitive. Au contraire, l'effet négatif est trouvé pour les acquéreurs répétitives. Ce résultat implique aussi l'utilisation abusive et détériore la performance future.

Le troisième essai porte à observer les comportements de la gestion des résultats par leur changement de la classification pour l'entreprise acquéreuse. L'étude récemment utilisée indique une méthode de gestion similaire à la méthode comptable. Nous supposons qu'elle est probablement engagée par l'entreprise coté. Cette recherche démontre la gestion des résultats á utiliser par les entreprises acquéreuses, de plus la façon d'utiliser ce comportement varie selon la modalité du paiement de l'acquisition. Nous appliquons deux modèles de résultats <<cores>> et nous avons observé les comportements de ce type de gestion des résultats parmi tous les acquéreurs pendant les sept ans autour de l'annonce de l'acquisition. Notre échantillons inclus les entreprises acquéreuses avec et sans les entreprises cotées dans une bourse américaine.

Ce troisième essai des contributions pour ce type de comportement se trouve dans toutes les modalités de paiement d'acquisition. Un niveau élevé de celui-ci est noté parmi les acquéreurs qui paient en une combinaison de titres et de liquidité. Néanmoins, nous avons observé la façon d'utiliser cette méthode différente selon la modalité du paiement de l'acquisition. Ce comportement

de gestion des résultats est plus appliqué pendant l'année qui précède l'acquisition des deux années suivantes, parmi les entreprises qui paient tout en action ainsi que pour celles paient une combinaison de titres et de liquidité. D'autre part, celles qui paient uniquement en liquidité, ainsi ce type de comportement a été observé tout au long des années d'acquisition avec un haut niveau au début et à la fin.

2. Limite et opportunité

2.1 Les limites de notre recherche

La réalisation de cette thèse s'est limitée à certains aspects. Première, une limite se trouve dans le modèle de R&D pour détecter la gestion des résultats via la façon non-comptable. Ce modèle n'a pas pu mesurer ce type de comportement pour les entreprises qui n'investit pas (très peu) dans la recherche et le développement.

Une autre limite peut être présentée dans les modèles utilisés pour détecter le comportement de la gestion des résultats en façon comptable. Comme mentionnée dans l'introduction, ces modèles sont basés sur la modèle de Jones modifié. Ajoutant des différentes variables permet de faire le modèle dérivé plus adapté à la situation mais l'effet reste limité. De plus, il n'y a pas de critère claire / standard / unique (convenu universellement) pour déterminer si le comportement de la gestion des résultats est significatif.

De plus, la réalisation des trois essais dans cette thèse s'est limitée au champ empirique des entreprises cotées sur le marché américain. Par conséquent, les entreprises privées ne sont pas observées et les résultats ne peuvent pas généraliser pour ces entreprises.

2.1. Implications du travail :

La gestion des résultats est une question de recherche qui a attiré les attentions des chercheurs depuis années 80 et ouvre un champ de discussion très vaste dans les nombreux domaines qui concernent la comptabilité, les études de cas et les comportements managériaux. Cette thèse s'efforce à combler les lacunes de connaissances sur les de la gestion des résultats dans le contexte de fusion et acquisition.

En pratique, Notre travail contribue à mieux comprendre la façon à gérer les résultats par les entreprises acquéreuses pendant les années autour de l'acquisition et à examiner les impacts apportés de ce type de comportement à la performance future. Il pourrait être intéressant également pour les autres intervenants sur le marché financier comme les investisseurs, les analystes financiers et les régulateurs.

En conclusion, notre thèse fait ressortir des résultats nouveaux, ceux qui montrent que la façon d'utiliser la gestion des résultats via différentes méthodes par les entreprises acquéreuses. Elle a examiné aussi les impacts apportés de ces comportements sur la performance future sous angles différents. Par ailleurs, elle suggère des idées possibles pour des recherches futures sur les acquéreurs qui paient en une combinaison de titre et de liquidité.

L'impact des opérations de fusions et acquisitions sur la qualité de l'information comptable

Résumé

Les opérations de fusions et acquisitions constituent un élément central de l'économie de marché et parallèlement forment l'un des principaux vecteurs de la dynamique de nos structures industrielles. Notre thèse vise à apprécier de façon objective et scientifique l'impact des opérations de fusions et d'acquisitions sur la qualité de l'information comptable produite par les entreprises. Compte tenu de son importance pour les acteurs économiques, la qualité de l'information comptable est d'abord comprise comme la qualité des résultats publiés par l'entreprise. Trois principaux axes sont dégagés au sein de cette problématique, qui constitue les trois principaux chapitres de notre thèse. Notre travail s'appuie sur une base de données regroupant les opérations des fusions et acquisitions entre les entreprises cotées sur le marché américain de l'année 1986 à l'année 2013. Les principes de ces chapitres sont les suivantes. Nous montrons tout d'abord que les entreprises impliquées dans les opérations payées par une combinaison de titres et de liquidités, opération ayant connues un fort développement, ont un comportement en manière de gestion de résultat proche des entreprises payant uniquement en titres, et à ce jour seules documentées. Nous établissons ensuite que la gestion de résultat de ces entreprises ne se réduit pas à la seule gestion des compte d'"accruals ". Nous montrons que les entreprises mobilisent également d'autre techniques, soit des méthodes purement comptables au travers par rendre de choix de classification des items, soit des méthodes ayant un impact sur les conditions réelles d'exploitation, au travers par exemple de l'ajustement des dépenses de R&D. Des liens de substitution / complémentarité entre ces différentes formes de gestion des résultats sont mise à jour, et mise en perspective des choix de méthodes de paiement des opérations. L'impact de la gestion des résultats sur la performance des acquéreurs est également analysé. Nous établissons en particuliers que si un degré modéré de gestion des résultats pourrait avoir des conséquences positives en manière de la performance, un comportement agressif en matière de gestion des résultats conduisant à reconnaitre un impact négatif sur la performance. Cela étant, il semble que la richesse des actionnaires ne soit affectée que très marginalement par ces choix de gestion des résultats, ceci autant à court terme que à long terme.

Mots clefs français : qualité des bénéfices, la gestion des résultats, fusions et acquisition, méthode de paiement

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Impact of M&A deals on firm's accounting information quality

Abstract

The Merger and Acquisition (M&A) operations constitute a key element of market economy and meanwhile form one of the main vectors of the dynamics of the industrial structures. This thesis aims at analyzing the impact of M&A operations on acquiring firm's accounting information quality. The accounting information quality shall be interpreted first of all, as the quality of earnings. Three main axes are emerged in this problematic and constitute three main chapters of this thesis. By observing all public M&A transactions on the U.S. market from the year 1986 to 2013, these three chapters provide following main contributions. First we find the acquiring firms that involved in the mixed payment acquisition have undergone notable development, have earnings management (EM) behaviors around acquisition years. However, prior study only documented a certain kind of behaviors of the 100% stock exchange acquirers. Plus, we indicate that the EM behavior of acquiring firm is not constraint to the accruals management (AM). We show that they are also likely to use many other ways, either accounting treatment through classification shifting, or real earnings management (REM) methods, for example through the budgetary adjustment of the R&D expenditures. A close link is found between the choice of EM methods and acquisition payment method. Moreover, a substitution / complementary effect is also noted between different forms of EM methods. The impact of these EM strategies on acquiring firm's performance is also analyzed. A moderate way of EM has positive impact on future operating performance while a high degree of these EM behaviors bring a negative impact. Nonetheless, it seems that the shareholders' wealth is only marginally affected by the choice of EM methods, in the short term as well as the long term.

Keywords: earnings quality, earnings management, mergers and acquisition, method of payment

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