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LES ANALYSTES FINANCIERS FACE À LA MUTATION DES MARCHÉS : BIAIS, PERFORMANCES ET ENJEUX DE RÉGULATION

FINANCIAL ANALYSTS AND EVOLVING MARKETS: BIAS, PERFORMANCE, AND REGULATION

THESE
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Introduction

Dans l'architecture complexe des marchés financiers contemporains, les analystes jouent un rôle crucial de médiateurs de l'information, en reliant les entreprises cotées aux investisseurs institutionnels et particuliers. Par leurs recommandations boursières, leurs prévisions de résultats et leurs rapports détaillés, ils contribuent à orienter les flux de capitaux, à façonner les perceptions des acteurs de marché et à influer sur les dynamiques de valorisation. Toutefois, si leur fonction semble indispensable au bon fonctionnement des marchés, leur objectivité et la qualité de leur production sont régulièrement remises en question, notamment à la lumière des crises financières, des conflits d'intérêts structurels et des transformations réglementaires récentes.

Loin d'être de simples observateurs neutres, les analystes financiers évoluent dans un environnement où se conjuguent incitations économiques, contraintes institutionnelles et biais cognitifs. L'éclatement de la bulle Internet, la crise financière de 2008, les évolutions réglementaires comme les IFRS, ou encore l'essor de l'intelligence artificielle ont considérablement modifié leur périmètre d'action, tout en exacerbant les tensions entre leur rôle prescrit d'expert impartial et les logiques stratégiques qui orientent leur activité réelle. C'est dans ce cadre que s'inscrit la présente thèse, qui propose une réflexion approfondie sur la place et le rôle des analystes financiers dans les marchés contemporains.

Cette introduction à une thèse par articles se propose d'analyser de manière critique le rôle, les pratiques et les implications épistémiques des analystes financiers, en particulier dans le contexte de marchés de capitaux en transformation. Elle s'articule autour de plusieurs axes complémentaires. La première partie examine la performance et la neutralité des analystes face à l'évolution des marchés, en interrogeant leur capacité à fournir une information utile et impartiale. La deuxième partie approfondit les limites cognitives, informationnelles et réglementaires de l'analyse financière, en soulignant les biais et les tensions inhérentes à la production de connaissances de marché. La troisième partie mobilise diverses perspectives théoriques, notamment les anticipations rationnelles, la finance comportementale, la théorie de l'agence et les problématiques d'asymétrie d'information, afin de mieux comprendre les dynamiques à l'œuvre dans les recommandations et prévisions des analystes sell-side. Ces réflexions sont prolongées dans une quatrième partie qui propose une lecture transversale et intégrée de trois articles scientifiques, à travers une mise en relation graphique, une analyse des dimensions théoriques communes, des méthodologies employées et des résultats empiriques. La cinquième partie met en lumière les contributions spécifiques de chaque article, en les situant dans leurs contextes respectifs : bulle Internet, comportements de prévision, effets de la régulation. Enfin, les sixième et septième parties proposent respectivement un résumé détaillé de chaque article et une synthèse de leur articulation, soulignant leur complémentarité analytique et la cohérence d'ensemble du projet de recherche.

Cette progression vise à articuler des apports théoriques, méthodologiques et empiriques, tout en offrant une grille de lecture critique sur la fonction analyste. Elle permet d'aborder leur rôle non seulement comme producteurs d'information, mais aussi comme acteurs qui participent à la construction des marchés eux-mêmes.

C'est dans cette optique que s'ouvre la première partie, consacrée à une évaluation critique de la performance et de la neutralité des analystes financiers, à l'aune des profondes transformations que connaissent aujourd'hui les marchés de capitaux.

1 Appréciation critique de la performance et de la neutralité des analystes financiers dans le cadre de marchés de capitaux en mutation

Les analystes financiers jouent un rôle central dans les marchés de capitaux en assurant le lien entre les entreprises cotées et les investisseurs. Par leurs évaluations, leurs prévisions de résultats et leurs recommandations boursières, ils sont fréquemment considérés comme des acteurs clés favorisant une allocation efficiente du capital, une meilleure liquidité des marchés ainsi qu'un renforcement de la confiance des investisseurs (Healy & Palepu, 2001 ; Brauer & Wiersema, 2018). En agissant comme intermédiaires informationnels, ils contribuent à réduire les asymétries d'information, élément fondamental dans les théories de l'efficience des marchés financiers (Jensen & Meckling, 1976). Toutefois, en dépit de leur influence au sein du paysage informationnel des entreprises, les analystes font régulièrement l'objet de critiques quant à leur possible partialité. À la suite des scandales financiers du début des années 2000, tels qu'Enron ou WorldCom, puis de la crise financière de 2007–2008, leur compétence, leur indépendance et leur efficacité ont été fortement remises en question (Bradley et al., 2008 ; Forbes et al., 2020). Des doutes persistants concernent leur capacité à demeurer impartiaux, dans la mesure où ils doivent souvent composer avec des relations étroites avec les dirigeants d'entreprise tout en soutenant les intérêts commerciaux des départements de courtage ou de banque d'investissement auxquels ils sont rattachés (Lin & McNichols, 1998 ; Cowen et al., 2006).

Ces tensions sont aujourd'hui largement perçues comme structurelles et intrinsèques à l'écosystème de l'information financière. Elles soulèvent des interrogations profondes sur la capacité des analystes à jouer pleinement leur rôle de garants de l'efficience informationnelle. Dans ce contexte, il n'est guère surprenant que la littérature consacrée aux analystes financiers soit aussi abondante. Les chercheurs ont mobilisé de vastes bases de données pour explorer un ensemble de questions, telles que la comparaison entre les prévisions des analystes et celles des modèles automatisés (Bradshaw, 2004 ; Xing, 2015), l'impact de leurs rapports sur les prix des titres (Womack, 1996), ou encore leur capacité à interpréter les données comptables dans des contextes complexes (Ashton & Cianci, 2007 ; Imam & Spence, 2016). Cependant, la recherche académique dans ce domaine présente encore d'importantes lacunes. De nombreuses études ont été critiquées pour la relative étroitesse de leur champ d'investigation, tant sur le plan des thématiques abordées que des approches méthodologiques employées (Brauer & Wiersema, 2018 ; Guo & Mota, 2021). Par ailleurs, le cadre réglementaire et institutionnel dans lequel évoluent les analystes financiers est en constante transformation. Des évolutions majeures, comme l'adoption des normes IFRS, ont profondément influencé la nature et la diffusion de la recherche financière (Byard, Li & Yu, 2011 ; Fang et al., 2020). C'est dans cette perspective que s'inscrit cette thèse, qui propose d'examiner la qualité de la production des analystes financiers, en abordant plusieurs enjeux majeurs liés à cette thématique.

Les analystes financiers jouent un rôle essentiel sur les marchés financiers, en aidant les investisseurs à prendre des décisions étayées grâce à leurs recommandations boursières, leurs estimations de bénéfices et leurs analyses globales du marché. Leur travail influence les prix des actions, les stratégies d'investissement, ainsi que les décisions prises par les entreprises elles-mêmes (Healy & Palepu, 2001 ; Francis & Soffer, 1997). Toutefois, la qualité de la production des analystes n'est pas toujours fiable, et divers facteurs, tels que les conflits d'intérêts, les évolutions réglementaires ou encore les conditions de marché, peuvent affecter la crédibilité de leurs recherches (Michaely & Womack, 1999 ; Loh & Stulz, 2018). Il apparaît dès lors fondamental d'étudier la qualité du travail des analystes financiers afin de mieux comprendre leur impact réel sur les marchés financiers.

Les analystes sell-side, en particulier, font souvent l'objet d'une attention critique en raison de leur affiliation avec des banques d'investissement et des sociétés de courtage. Leurs recommandations, qu'il s'agisse d'acheter, de vendre ou de conserver une action, ont un poids considérable, mais peuvent également être entachées de biais, notamment en période de forte volatilité (Trueman, 1994 ; Guedj & Bouchaud, 2005). Les estimations de bénéfices formulées par les analystes, que les investisseurs utilisent pour évaluer les actions, peuvent parfois se révéler inexactes ou être influencées par des pressions externes liées aux objectifs commerciaux de leurs employeurs (Lim, 2001 ; Hong & Kubik, 2003). En outre, l'environnement réglementaire joue un rôle déterminant dans l'orientation du comportement des analystes. Des réglementations telles que MIFID II ou l'adoption des normes internationales d'information financière (IFRS) ont profondément modifié les pratiques des analystes financiers, affectant à la fois la qualité, la couverture et la diffusion des recherches (Byard, Li & Yu, 2011 ; Fang, Hong & Hu, 2020 ; Guo & Mota, 2021). L'examen approfondi de ces différents aspects permet ainsi de mieux cerner les forces et les limites du travail des analystes, ainsi que ses implications sur l'efficience des marchés.

Les recommandations émises par les analystes financiers constituent l'un des aspects les plus visibles de leur activité. Ces recommandations servent de repères aux investisseurs, les aidant à décider s'il convient d'acheter, de vendre ou de conserver une action. Toutefois, plusieurs études ont montré que les analystes ont tendance à émettre un nombre disproportionné de recommandations d'achat par rapport à celles de vente (Bradshaw, 2004 ; Barber, Lehavy & Trueman, 2010). Cette asymétrie s'explique souvent par les conflits d'intérêts inhérents au modèle économique du sell-side. En effet, de nombreux analystes exercent au sein de sociétés de courtage ou de banques d'investissement, ce qui peut les inciter à éviter de formuler des avis négatifs sur des entreprises qui sont également clientes de leur employeur (Lin & McNichols, 1998 ; Cowen, Groysberg & Healy, 2006).

Ce conflit d'intérêts est devenu particulièrement manifeste lors de la bulle internet, période durant laquelle de nombreux analystes ont continué à émettre des recommandations positives sur les actions technologiques, malgré des signes évidents de surévaluation (Bradley et al., 2008). Lorsque la bulle a

éclaté, de nombreux investisseurs ont subi des pertes importantes, soulevant de sérieuses interrogations quant à la crédibilité des analystes financiers. Des préoccupations similaires ont émergé lors de la crise financière de 2008, certains analystes n'ayant pas su alerter les investisseurs sur les risques liés aux titres adossés à des prêts hypothécaires subprimes (Langevoort, 1997 ; Forbes, Watson & Wilson, 2020). Ces exemples historiques illustrent la nécessité d'évaluer la qualité et l'objectivité des recommandations formulées par les analystes.

Au-delà des recommandations boursières, les prévisions de résultats constituent un autre pilier fondamental du travail des analystes financiers. Les investisseurs s'appuient sur ces estimations pour évaluer la santé financière des entreprises et élaborer leurs modèles de valorisation. Lorsque ces prévisions sont précises, elles contribuent à une fixation efficiente des prix sur les marchés financiers (Francis & Soffer, 1997 ; Groysberg, Healy & Chapman, 2008). En revanche, lorsqu'elles sont biaisées ou systématiquement inexactes, elles peuvent induire les investisseurs en erreur et alimenter des inefficiences de marché (Lim, 2001 ; Hong & Kubik, 2003 ; Loh & Stulz, 2018).

Plusieurs facteurs influencent la précision des prévisions de résultats. Les analystes disposant d'une expertise sectorielle approfondie et d'un accès à des données de haute qualité ont tendance à formuler des prévisions plus exactes (Jacob, Lys & Neale, 1999 ; Clement, 1999). Toutefois, leur proximité avec les dirigeants d'entreprise peut également introduire des biais. Les entreprises ont en effet intérêt à véhiculer une vision optimiste de leurs performances futures, et les analystes entretenant des relations étroites avec la direction peuvent être influencés par ce discours (Michaely & Womack, 1999 ; Lin & McNichols, 1998). Cette situation soulève ainsi des interrogations quant au caractère réellement objectif des estimations de résultats : reflètent-elles une analyse financière indépendante ou sont-elles façonnées par des pressions externes ?

La régulation a joué un rôle déterminant dans les efforts visant à améliorer l'objectivité des prévisions de résultats formulées par les analystes. L'un des changements réglementaires les plus influents de ces dernières années a été la mise en œuvre de la directive sur les marchés d'instruments financiers (MIFID II) en Europe. MIFID II a été conçue pour accroître la transparence des marchés financiers et réduire les conflits d'intérêts entre les analystes et les banques d'investissement (Fang, Hong & Hu, 2020 ; Guo & Mota, 2021). L'une de ses dispositions clés impose aux sociétés d'investissement de dissocier le coût de la recherche de celui des commissions de courtage, ce qui signifie que les gestionnaires d'actifs doivent désormais payer explicitement pour les analyses produites par les analystes, au lieu de les recevoir dans le cadre d'un service groupé.

Cette réglementation a eu des conséquences profondes sur l'industrie de la recherche financière. De nombreuses sociétés de courtage ont réduit leurs budgets consacrés à la recherche, ce qui a entraîné une diminution du nombre d'analystes couvrant les entreprises de petite et moyenne capitalisation (Anselmi & Petrella, 2021). Par conséquent, une inquiétude croissante s'est manifestée quant au fait

que cette réduction de la couverture analytique pourrait accentuer l'asymétrie d'information sur les marchés financiers (Brown, Call, Clement & Sharp, 2015 ; Lee et al., 2023). Bien que MIFID II ait eu pour objectif de renforcer l'indépendance des analystes, elle a également engendré des effets inattendus, susceptibles d'avoir un impact négatif sur l'efficience des marchés. L'étude des effets de ce type de réglementation permet aux chercheurs d'évaluer si ces politiques atteignent réellement leurs objectifs ou si des ajustements supplémentaires s'avèrent nécessaires (Byard, Li & Yu, 2011 ; Leuz & Wysocki, 2016).

Une autre évolution réglementaire majeure ayant eu un impact sur le travail des analystes financiers est l'adoption des Normes internationales d'information financière (IFRS). Ces normes ont profondément modifié la manière dont les entreprises publient leurs résultats financiers, influençant directement les estimations de bénéfices des analystes ainsi que leurs modèles de valorisation des actions (Byard, Li & Yu, 2011 ; Horton, Serafeim & Serafeim, 2013). Contrairement aux normes comptables nationales précédentes, souvent hétérogènes et spécifiques à chaque pays, les IFRS visent à instaurer un cadre harmonisé, transparent et comparable à l'échelle internationale.

L'adoption des IFRS a généré à la fois des avantages et des défis pour les analystes financiers. Du côté positif, l'uniformisation de la présentation de l'information financière permet une meilleure comparabilité entre les entreprises de différents pays, ce qui améliore la qualité des analyses transfrontalières (Armstrong et al., 2010). Plusieurs études ont montré que l'environnement informationnel s'est amélioré après l'introduction des IFRS, rendant les prévisions des analystes plus précises et les révisions de bénéfices plus réactives aux nouvelles informations (Tan, Wang & Welker, 2011). Toutefois, les IFRS ont également introduit de nouvelles sources de complexité, notamment dans les domaines sensibles comme la reconnaissance du chiffre d'affaires, les instruments financiers ou la comptabilité à la juste valeur (Ball, 2006 ; Barth et al., 2012). Ces éléments ont parfois déstabilisé les modèles de prévision établis par les analystes, en particulier dans les premières années suivant la mise en œuvre. À court terme, cela a pu engendrer des erreurs d'estimation plus fréquentes, notamment dans les secteurs où les normes IFRS introduisaient des changements significatifs (Florou & Pope, 2012).

Par ailleurs, la transition vers les IFRS a mis en évidence des différences marquées dans la manière dont les entreprises interprètent et appliquent ces règles. Bien que les IFRS reposent sur une logique de principes visant à refléter la substance économique des opérations, cette souplesse peut introduire une variabilité dans la qualité de l'information comptable produite (Soderstrom & Sun, 2007). Les analystes doivent donc redoubler de vigilance pour évaluer si les résultats publiés reflètent fidèlement la performance économique des entreprises. Cette incertitude souligne l'importance d'étudier la manière dont les analystes s'adaptent à ces nouvelles normes pour comprendre leur effet réel sur la qualité et la fiabilité de l'analyse financière (Liu, Yao & Hu, 2011).

L'impact des biais comportementaux sur le travail des analystes financiers constitue également un champ d'étude essentiel dans la littérature en finance comportementale. Comme tout individu, les analystes sont susceptibles d'être influencés par des biais psychologiques tels que l'excès de confiance, le comportement grégaire, ou encore le biais de confirmation. L'excès de confiance peut amener les analystes à surestimer leur capacité de prévision, les conduisant à formuler des projections de résultats excessivement optimistes (Hilary & Menzly, 2006 ; Hribar & Yang, 2016). Ce biais est particulièrement problématique lorsqu'il s'exerce dans des contextes d'incertitude élevée, où les pressions institutionnelles et la compétition pour la visibilité amplifient les comportements risqués (Hayward & Hambrick, 1997). Le comportement grégaire, quant à lui, se manifeste lorsque les analystes ajustent leurs estimations pour les aligner sur le consensus du marché, plutôt que de s'appuyer sur une analyse indépendante (Trueman, 1994 ; Jegadeesh & Kim, 2010). Ce biais est souvent renforcé par les dynamiques de classement professionnel ou la peur de se distinguer, surtout lorsque les erreurs individuelles peuvent être pénalisées plus sévèrement que les erreurs partagées (Graham, 1999). Enfin, le biais de confirmation pousse les analystes à privilégier les informations qui confortent leurs hypothèses initiales, au détriment des données qui les contredisent, réduisant ainsi leur capacité d'adaptation face à de nouvelles informations (Ashton & Ashton, 1985 ; Kida, Smith & Maletta, 1991).

La compréhension de ces biais comportementaux est essentielle pour évaluer la fiabilité des travaux des analystes. Si leurs prévisions et recommandations sont systématiquement affectées par des biais cognitifs, elles peuvent perdre leur valeur informative et induire en erreur les investisseurs. C'est pourquoi plusieurs travaux ont recommandé que les utilisateurs de ces analyses adoptent une lecture critique des rapports, en tenant compte des motivations, des pressions et des biais sous-jacents (Imam & Spence, 2016 ; Brown et al., 2015).

Le rôle des analystes financiers ne se limite pas aux prévisions de bénéfices ou aux recommandations d'investissement. Ils participent activement à la formation du sentiment de marché, en influençant la perception collective des investisseurs. Lorsque les analystes expriment un sentiment majoritairement positif à l'égard d'un secteur ou d'un titre, cela peut générer un effet d'entraînement sur les marchés, encourageant les investisseurs à acheter et alimentant les hausses de prix (Jegadeesh & Kim, 2006 ; Barberis, Shleifer & Wurgler, 2005). À l'inverse, des tonalités négatives dans leurs rapports peuvent provoquer des réactions de vente, parfois excessives, et accentuer la volatilité. Ces phénomènes montrent à quel point les analystes ne sont pas seulement des producteurs d'information, mais également des acteurs influents dans la construction des dynamiques de marché. Cela renforce la nécessité d'évaluer en continu la qualité, l'indépendance et la robustesse méthodologique de leur travail.

Compte tenu de la complexité et de l'importance du travail des analystes financiers, il est essentiel d'étudier en continu leur impact sur les marchés financiers. Leurs recommandations, leurs estimations de résultats ainsi que le cadre réglementaire dans lequel ils évoluent influencent directement les décisions d'investissement et la dynamique des marchés. Toutefois, leur activité n'échappe pas aux biais, aux conflits d'intérêts ni aux contraintes réglementaires. L'analyse de ces facteurs permet aux chercheurs de mieux cerner dans quelle mesure les analystes apportent une véritable valeur ajoutée aux marchés financiers, ou si leur rôle nécessite un examen plus approfondi, voire une régulation renforcée.

Garantir que les analystes financiers respectent des standards élevés d'objectivité, de précision et de transparence est essentiel pour préserver l'efficience des marchés. Bien que des réglementations telles que MIFID II et les normes IFRS aient cherché à améliorer la qualité de la recherche financière, leur impact réel demeure un sujet de débat. À mesure que les marchés financiers évoluent, il apparaît nécessaire de continuer à analyser et à interroger le rôle des analystes, les incitations auxquelles ils sont soumis, ainsi que l'efficacité des dispositifs réglementaires en place. Ce n'est qu'au prix de tels efforts que l'on pourra s'assurer que les analystes financiers demeurent des acteurs utiles au bon fonctionnement des marchés de capitaux, et non des vecteurs de désinformation ou de distorsions de marché.

2. Les limites épistémiques de l'analyse financière : biais, régulation et construction de la connaissance de marché

Le travail des analystes financiers joue un rôle fondamental dans l'orientation des décisions des investisseurs, la définition des stratégies d'entreprise et la dynamique des marchés. Leurs recommandations, qu'il s'agisse d'acheter, de vendre ou de conserver un titre, ainsi que leurs estimations de résultats constituent des éléments clés dans le fonctionnement des marchés financiers. Toutefois, lorsqu'on adopte une perspective épistémologique, des interrogations se posent quant à la qualité et à la fiabilité de ces prévisions. Peut-on véritablement considérer les analyses des analystes financiers comme une forme de savoir, ou ne s'agit-il que d'un ensemble d'hypothèses, limitées par des contraintes méthodologiques et institutionnelles ? Cette question se révèle particulièrement pertinente à la lumière des effets de la régulation, en particulier des dispositifs tels que MIFID II ou les IFRS, sur le statut épistémique de la recherche financière (Aghanya et al., 2020).

L'étude du travail des analystes financiers, qu'il s'agisse de la précision de leurs prévisions, de leurs biais ou de leurs réactions face aux évolutions réglementaires s'inscrit généralement dans un cadre

hypothético-déductif (Leuz & Wysocki, 2016). Les chercheurs en finance et en comptabilité partent d'hypothèses théoriques concernant la manière dont les analystes traitent l'information, forment leurs anticipations et ajustent leurs recommandations en fonction de nouvelles données. Ces hypothèses donnent lieu à des propositions testables, qui sont ensuite validées ou infirmées à l'aide d'analyses statistiques portant sur des bases de données financières, des résultats comptables historiques et des réactions de marché. Cette approche vise à mettre en évidence des régularités comportementales généralisables chez les analystes. Toutefois, elle soulève également des questions épistémologiques : dans quelle mesure ce qui est observé est-il structuré par les modèles utilisés ? Dans quelle mesure les hypothèses intégrées à ces études limitent-elles la portée des conclusions que l'on peut en tirer ? L'usage des méthodes économétriques, bien qu'il repose sur une rigueur formelle, suppose que les décisions des analystes peuvent être modélisées selon des principes proches de ceux des sciences naturelles. Or, les marchés financiers sont profondément influencés par la psychologie humaine, les incitations institutionnelles et des chocs exogènes souvent imprévisibles (McEwen et al., 2008).

Ainsi, si le cadre hypothético-déductif constitue une approche structurée et rigoureuse de la recherche scientifique, en partant d'hypothèses formulées a priori pour les tester empiriquement, il soulève également des interrogations épistémologiques importantes. Ce cadre repose sur des postulats de séparation nette entre théorie et observation, d'objectivité du chercheur, et de possibilité de généralisation des résultats. Or, plusieurs auteurs ont mis en lumière les limites de cette approche, notamment en sciences sociales, où l'objet d'étude est souvent contextuel, complexe et dépendant de l'interprétation de l'observateur. Dyball, O'Donnell et Kramar (2013), dans une perspective inspirée du réalisme critique, soulignent ainsi que la simple application de méthodes positivistes ne suffit pas à rendre compte des mécanismes sous-jacents aux phénomènes étudiés. Ils plaident pour une complémentarité entre approches positivistes et interprétatives, afin de dépasser les limites inhérentes à une posture strictement hypothético-déductive. Dans le même esprit, Morgan (1983) insiste sur le fait que le processus de modélisation économique repose souvent sur des analogies et des métaphores, qui façonnent implicitement les hypothèses de départ, mettant ainsi en cause leur prétendue neutralité.

Ces critiques invitent à une lecture plus réflexive du cadre hypothético-déductif, en reconnaissant qu'il structure certes l'enquête scientifique, mais en imposant aussi des contraintes épistémiques : réduction de la complexité, standardisation des variables, et marginalisation des phénomènes non quantifiables.

Au-delà de ces considérations méthodologiques, les analystes financiers ne sont pas de simples observateurs neutres. Leur production analytique est influencée par des incitations économiques, des biais cognitifs et des pressions institutionnelles (Westphal & Graebner, 2010). Ils ne se contentent pas de décrire une réalité financière objective : ils contribuent également à la construire. Lorsqu'un consensus se forme autour de projections de bénéfices optimistes, les investisseurs ont tendance à

réagir en augmentant leur demande pour l'action concernée, renforçant ainsi la tendance anticipée (Beunza & Garud, 2007). Cet aspect performatif de l'analyse financière remet en question la conception épistémologique classique (Popper, 1959) selon laquelle le savoir devrait rester indépendant de l'observateur. Il suggère, au contraire, l'existence d'une boucle de rétroaction, dans laquelle les prévisions influencent les comportements de marché, qui à leur tour valident ou invalident ces prévisions. Cette dynamique rend plus complexe l'idée que la prévision financière puisse être totalement objective ou détachée des mécanismes sociaux et institutionnels qui la sous-tendent (Langevoort, 1997).

La régulation vient complexifier davantage encore l'épistémologie de l'analyse financière. Mise en œuvre en 2018, la directive MIFID II a profondément modifié le modèle économique de la recherche financière. En imposant aux gestionnaires d'actifs de payer séparément pour accéder aux rapports d'analystes plutôt que de les recevoir dans le cadre de services de courtage groupés, cette réforme visait à renforcer la transparence et à réduire les conflits d'intérêts (Aghanya et al., 2020). Si cette évolution a constitué un pas vers une plus grande indépendance de la recherche, elle a également engendré des effets secondaires inattendus. De nombreuses cellules de recherche au sein des sociétés de courtage ont vu leurs budgets réduits, ce qui a entraîné une diminution de la couverture analytique, en particulier pour les entreprises de petite et moyenne capitalisation. Ce phénomène a conduit à une forme « d'asymétrie épistémique », dans laquelle les grandes entreprises continuent de bénéficier d'une large visibilité grâce à une couverture abondante, tandis que les sociétés plus modestes deviennent de plus en plus invisibles aux yeux des investisseurs. Cette situation souligne que la production de savoir financier ne dépend pas uniquement des compétences analytiques des experts, mais aussi des structures institutionnelles qui orientent l'attention vers certaines entreprises, tout en en occultant d'autres (Radaelli, 2013).

Un autre changement réglementaire ayant profondément transformé la production de savoir des analystes financiers est l'adoption des normes IFRS (le 1er janvier 2005 dans l'Union Européenne). Contrairement aux anciens référentiels comptables nationaux, les IFRS introduisent un système fondé sur des principes, offrant ainsi une plus grande marge d'appréciation aux dirigeants dans la présentation de l'information financière (Tsalavoutas, 2009). Si cette évolution a permis une meilleure comparabilité entre les entreprises à l'échelle internationale, elle a également introduit une forme d'ambiguïté. Là où les états financiers étaient auparavant encadrés par des règles strictes, ils nécessitent désormais une interprétation. Les analystes se trouvent confrontés à la nécessité d'adapter leurs modèles d'évaluation pour tenir compte des différentes manières dont les entreprises appliquent les normes IFRS, ce qui engendre des écarts significatifs dans les prévisions de résultats (Leuz, 2018). Cette évolution souligne un enjeu épistémologique majeur de l'analyse financière : il ne s'agit plus simplement de révéler une vérité objective, mais de naviguer dans un processus interprétatif, largement influencé par les récits construits par les directions d'entreprise (Clatworthy & Jones, 2003).

En plus des effets liés à la régulation, les biais comportementaux jouent un rôle central dans la structuration du cadre épistémique des analystes financiers. Les travaux en finance comportementale ont montré que, comme tout décideur, les analystes sont influencés par des distorsions cognitives telles que l'excès de confiance, le comportement grégaire ou encore le biais de confirmation (McEwen et al., 2008). L'excès de confiance peut conduire les analystes à surestimer leurs capacités prédictives, les amenant à formuler des prévisions de résultats excessivement optimistes (Westphal & Graebner, 2010). Le comportement grégaire, quant à lui, pousse les analystes à aligner leurs prévisions sur le consensus du marché, afin de limiter les risques réputationnels. Lorsqu'un analyste s'écarte fortement de la majorité et se trompe, il s'expose à des conséquences professionnelles négatives. En revanche, s'il suit le consensus et que l'ensemble du marché se trompe, la responsabilité perçue est partagée, ce qui réduit son exposition individuelle. Ce mécanisme engendre une tendance à la conformité épistémique, au détriment d'une production autonome et critique de la connaissance (Brauer & Wiersema, 2018).

La relation entre les analystes financiers et les dirigeants d'entreprise introduit une couche supplémentaire de distorsion épistémique. Les analystes dépendent de l'accès à la direction pour obtenir des informations clés sur la performance des entreprises, tandis que les dirigeants ont tout intérêt à présenter leur société sous un jour favorable. Cette dynamique peut conduire les analystes à publier des rapports qui ne sont pas entièrement indépendants, mais plutôt influencés par leurs relations avec le management (Westphal & Clement, 2008). Dans certains cas, les dirigeants choisissent de divulguer de manière sélective certaines informations aux analystes qu'ils perçoivent comme favorables, créant ainsi un cercle où les recommandations positives sont récompensées par un accès privilégié. Ce système remet en question l'idéal d'une analyse financière objective et autonome, en révélant qu'elle est profondément ancrée dans des réseaux sociaux et professionnels qui façonnent sa structure épistémique (Beunza & Garud, 2007).

Au regard des limites méthodologiques, réglementaires et comportementales évoquées, une question fondamentale se pose : comment comprendre la prévision financière d'un point de vue épistémologique ? Si les prédictions sont façonnées par les réactions du marché, les contraintes institutionnelles et les biais cognitifs, peuvent-elles encore être considérées comme un savoir au sens classique du terme ? Une réponse possible, suggérée par le réalisme critique, consiste à reconnaître que l'analyse financière s'inscrit dans un cadre probabiliste et socialement construit (Dyball et al., 2013). Plutôt que de présupposer que les prévisions de résultats révèlent une vérité objective sur la performance future, cette approche invite à les envisager comme des jugements éclairés, formulés dans un contexte structuré par les dynamiques de marché, les interactions sociales et les limitations propres à la condition humaine (Beunza & Garud, 2007).

Cette perspective met également en lumière la nécessité de recourir à des approches interdisciplinaires dans l'étude des phénomènes financiers. Alors que les analystes s'appuient traditionnellement sur des modèles quantitatifs, l'intégration d'apports issus de la sociologie, de la psychologie ou encore de la science politique permettrait de mieux saisir la complexité des comportements de marché (Westphal & Graebner, 2010). Par exemple, les recherches portant sur les dynamiques sociopolitiques de la régulation financière montrent que les règles du marché ne sont pas de simples dispositifs techniques, mais qu'elles sont façonnées par des rapports de pouvoir et des logiques idéologiques (Radaelli, 2013). L'épistémologie des marchés financiers ne saurait ainsi se réduire à la seule modélisation numérique : elle requiert une compréhension fine des manières dont les régulations, les relations sociales et les structures institutionnelles influencent la production de savoir (Langevoort, 1997).

Compte tenu de ces multiples dimensions, les prévisions formulées par les analystes financiers ne devraient pas être évaluées uniquement à l'aune de leur précision prédictive. Leur rôle doit plutôt être envisagé comme une contribution à un discours plus large sur les attentes de marché (Westphal & Clement, 2008). Les analystes ne se contentent pas de prédire l'avenir ; ils participent activement à sa construction, en influençant à la fois le sentiment des investisseurs et les décisions stratégiques des entreprises. Cette dimension performative de leur activité suggère que l'analyse financière relève autant d'un travail de mise en forme des perceptions que d'une quête de vérité objective (Leuz & Wysocki, 2016). La frontière entre savoir et narration devient alors floue, renforçant l'idée que la prévision financière constitue une interaction évolutive entre interprétation des données, dynamiques sociales et cadres réglementaires (McEwen et al., 2008).

Compte tenu de l'interaction entre ces différents facteurs, l'épistémologie du travail des analystes financiers ne peut être appréhendée de manière isolée, sans tenir compte de son ancrage institutionnel, réglementaire et psychologique. Leur production de savoir s'inscrit dans un système où la connaissance est influencée par les incitations, limitée par les biais cognitifs et encadrée par des structures institutionnelles (Aghanya et al., 2020). Plutôt que de considérer la prévision financière comme une entreprise strictement scientifique, il semble plus pertinent de l'envisager comme une pratique socialement construite, combinant analyse empirique et mise en récit stratégique (Tsalavoutas, 2009).

Comprendre le cadre épistémique dans lequel s'inscrit le travail des analystes financiers ne constitue pas uniquement un exercice théorique : cela revêt également des enjeux pratiques majeurs pour l'efficience des marchés et la prise de décision des investisseurs. Si les prévisions financières sont par nature incertaines et soumises à de multiples influences externes, comment les investisseurs doivent-ils alors interpréter les rapports des analystes ? Une lecture critique de l'analyse financière suppose une prise de conscience des limites évoquées précédemment, et la reconnaissance du fait qu'aucune prévision ne peut être totalement objective (Brauer & Wiersema, 2018). Il convient donc d'envisager

les recommandations financières non comme des vérités absolues, mais comme des perspectives informées, qu'il faut contextualiser dans un environnement plus large, marqué par des conditions de marché spécifiques et des cadres réglementaires en constante évolution (Clatworthy & Jones, 2003).

Cette critique épistémologique a également des implications importantes en matière de régulation financière. Si des réformes telles que MIFID ou les IFRS modifient en profondeur les modalités de production du savoir financier, les régulateurs doivent prendre en compte non seulement les objectifs de transparence et d'équité, mais aussi la manière dont ces dispositifs influencent la qualité, la précision et l'accessibilité de la recherche financière (Leuz, 2018). Les décideurs publics devraient reconnaître que les marchés financiers ne sont pas uniquement mus par des calculs rationnels, mais par des interactions complexes entre régulation, psychologie et structures institutionnelles (Westphal & Graebner, 2010). Garantir l'intégrité de l'analyse financière ne revient donc pas seulement à imposer des règles de transparence ; cela exige une réflexion sur les effets que ces règles exercent sur la production même du savoir financier (Langevoort, 1997).

L'étude de la recherche produite par les analystes financiers à travers une loupe épistémologique met en évidence les difficultés profondes à définir ce qui constitue réellement un savoir sur les marchés financiers. Plutôt que de concevoir l'analyse financière comme une science exacte, il semble plus juste de l'appréhender comme un mélange d'investigation empirique, d'influences sociales et d'adaptations réglementaires (Beunza & Garud, 2007). Prendre la mesure de cette complexité est essentiel pour renforcer la fiabilité de la recherche financière et encourager une compréhension plus fine et plus nuancée de la dynamique des marchés.

3. Perspectives théoriques sur les recommandations et les prévisions de résultats des analystes financiers sell-side

Les analystes financiers jouent un rôle fondamental sur les marchés de capitaux, en influençant les décisions des investisseurs et en contribuant à la formation des prix des actifs, notamment à travers leurs recommandations boursières et leurs prévisions de résultats. Parmi eux, les analystes sell-side, qui exercent au sein de sociétés de courtage ou de banques d'investissement, publient des rapports de recherche détaillés contenant des recommandations d'achat, de vente ou de conservation, accompagnées d'estimations de bénéfices. Ces recommandations sont cruciales, car elles permettent aux acteurs du marché d'interpréter les données financières et d'orienter leurs stratégies d'investissement. Toutefois, la fiabilité et l'objectivité de ces prévisions font l'objet de critiques récurrentes, en raison de la présence possible de biais, de conflits d'intérêts et de l'influence de la réglementation.

Le cadre théorique qui sous-tend les recommandations et les prévisions des analystes financiers a fait l'objet d'une vaste littérature académique. Les approches varient, allant de la théorie des anticipations rationnelles, selon laquelle les analystes intègrent de manière efficiente l'ensemble des informations disponibles dans leurs prévisions, à la finance comportementale, qui met en évidence l'impact des biais cognitifs et des influences psychologiques. Par ailleurs, la théorie de l'agence s'intéresse aux conflits d'intérêts potentiels, notamment lorsque les analystes exercent au sein d'institutions financières ayant des intérêts économiques dans les entreprises qu'ils évaluent. Enfin, la théorie de l'asymétrie d'information analyse le rôle des analystes en tant qu'intermédiaires entre les dirigeants d'entreprise (insiders) et les investisseurs, contribuant à la diffusion de l'information financière sur les marchés.

3.1 Anticipations rationnelles et efficience des prévisions des analystes

L'hypothèse des anticipations rationnelles, ancrée dans la théorie financière classique, postule que les analystes financiers agissent en tant qu'agents rationnels, traitant l'ensemble des informations disponibles, qu'elles soient publiques ou privées, afin de produire des prévisions non biaisées et précises (Bradshaw, 2004). Ce cadre théorique suppose que les analystes mettent continuellement à jour leurs anticipations en fonction des nouvelles données de marché, de sorte que leurs recommandations boursières reflètent la valeur intrinsèque des actifs. Dans cette perspective, les investisseurs s'appuient sur les prévisions des analystes car elles fournissent une synthèse efficiente des performances futures des entreprises.

Cependant, de nombreuses études empiriques remettent en question l'idée selon laquelle les analystes se comporteraient comme des agents pleinement rationnels. Francis & Soffer (1997) montrent que les analystes présentent fréquemment des biais systématiques dans leurs prévisions de bénéfices et leurs recommandations boursières. Ces biais viennent contredire l'hypothèse selon laquelle les analystes intègrent l'ensemble des informations disponibles de manière efficiente. Au contraire, leur jugement peut être influencé par des facteurs externes tels que les relations avec les entreprises analysées, les incitations liées à leur carrière, ou encore le sentiment du marché, autant d'éléments susceptibles d'altérer la précision de leurs prévisions. Bradshaw (2004) explore en outre la manière dont les analystes utilisent les prévisions de bénéfices pour formuler leurs recommandations boursières, soulignant les écarts persistants entre l'efficience théorique attendue de ces prévisions et leur mise en œuvre dans la pratique.

3.2 Finance comportementale : les biais dans la prise de décision des analystes

L'un des écarts les plus significatifs par rapport au modèle de rationalité est mis en évidence par la finance comportementale, qui souligne le rôle des biais cognitifs et des facteurs psychologiques dans les processus décisionnels des analystes. Comme tout individu, les analystes sont sujets à des heuristiques et à des biais susceptibles de fausser leurs prévisions.

Un exemple clé est le comportement grégaire, selon lequel les analystes ont tendance à aligner leurs recommandations sur la position consensuelle afin de limiter les risques pour leur carrière (Groysberg, Healy & Chapman, 2008). Ce comportement réduit la probabilité qu'un analyste publie une recommandation indépendante ou contraire à la tendance dominante, même lorsque son analyse personnelle indique un scénario différent. Brauer & Wiersema (2018) montrent ainsi que les analystes imitent fréquemment les prévisions de leurs pairs, non pas sur la base de leur propre évaluation, mais en réponse à des considérations de réputation et à des enjeux de sécurité professionnelle.

Un autre biais majeur est l'excès de confiance, qui conduit les analystes à surestimer leurs capacités de prévision. Ashton & Cianci (2007) montrent que les analystes ont tendance à publier des estimations de résultats systématiquement trop élevées ou trop basses, traduisant une croyance en la supériorité de leurs compétences analytiques, malgré des résultats empiriques contrastés. Ce biais se manifeste fréquemment par des recommandations excessivement optimistes, en particulier lorsque les analystes entretiennent des relations étroites avec les dirigeants des entreprises analysées.

En plus de ces facteurs psychologiques, Imam & Spence (2016) soulignent que les analystes qui publient des recommandations excessivement optimistes peuvent gagner la faveur des dirigeants d'entreprise, obtenant ainsi un meilleur accès à des informations privilégiées issues du management. Ce mécanisme crée une incitation supplémentaire à produire des prévisions biaisées et renforce la

tendance à émettre des recommandations boursières favorables, indépendamment de l'analyse fondamentale réelle.

3.3 Théorie de l'agence : conflits d'intérêts dans la recherche des analystes financiers

La théorie de l'agence, formulée par Jensen & Meckling (1976), repose sur l'idée que les relations entre principaux (investisseurs) et agents (analystes financiers, dans ce cas) sont susceptibles de générer des conflits d'intérêts lorsque les objectifs des deux parties ne sont pas parfaitement alignés. Dans le contexte de la recherche financière, cette théorie permet de comprendre comment les analystes sell-side, employés par des banques d'investissement ou des sociétés de courtage, peuvent être soumis à des incitations conflictuelles : d'un côté, produire des analyses utiles aux investisseurs ; de l'autre, soutenir les intérêts commerciaux de leur employeur.

Ces conflits se manifestent notamment lorsque les entreprises analysées sont également clientes des services bancaires (fusions-acquisitions, introductions en bourse, etc.) de l'institution pour laquelle travaille l'analyste. Dans ce cas, une recommandation négative pourrait nuire à la relation commerciale et entraîner des pertes financières pour la banque. Ce désalignement entre l'intérêt des investisseurs (recevoir une évaluation honnête) et celui de la firme (préserver ses revenus) constitue un problème d'agence typique, susceptible d'entacher l'objectivité et la crédibilité de la recherche produite. Le cadre théorique de l'agence offre une autre lecture du comportement des analystes, en mettant l'accent sur les conflits d'intérêts structurels liés à leur appartenance institutionnelle. Cette situation crée une incitation forte à émettre des recommandations boursières favorables, dans le but de soutenir l'activité de banque d'affaires de leur employeur (Bradshaw, 2002).

Cheng, Liu & Qian (2004) montrent que les analystes employés par des banques d'investissement sont significativement plus enclins à formuler des prévisions de bénéfices optimistes ainsi que des recommandations d'achat surévaluées, en comparaison avec leurs homologues indépendants. Cet optimisme stratégique contribue à maintenir de bonnes relations avec les entreprises couvertes, favorisant ainsi l'obtention de mandats lucratifs d'émission de titres pour leur institution. De manière similaire, Francis & Soffer (1997) confirment que les analystes travaillant pour des banques ayant des liens capitalistiques ou commerciaux avec les sociétés qu'ils évaluent ont tendance à publier des objectifs de cours systématiquement plus élevés et à éviter les recommandations de vente.

Pour atténuer ces conflits d'intérêts, des mesures réglementaires telles que le Global Analyst Research Settlement et la directive MIFID II ont été mises en place. Ces réformes visent à séparer la recherche financière des activités de banque d'investissement, dans le but de renforcer l'objectivité des analyses. Toutefois, leur efficacité fait toujours l'objet de débats. Aghanya, Agarwal & Poshakwale (2020) soutiennent que, bien que MIFID II ait amélioré la transparence, elle a également engendré des effets pervers : en particulier, une réduction de la couverture analytique des entreprises de petite et moyenne

capitalisation, en raison de la dissociation des paiements pour la recherche et des commissions de courtage.

3.4 Asymétrie d'information : les analystes en tant qu'intermédiaires de marché

La théorie de l'asymétrie d'information, telle que formulée initialement par Akerlof (1970) et approfondie par Healy & Palepu (2001), repose sur l'idée que les différents acteurs d'un marché ne disposent pas du même niveau d'information, ce qui peut conduire à des décisions inefficaces, voire à des défaillances de marché. Dans le contexte financier, les dirigeants d'entreprise (insiders) possèdent une connaissance privilégiée de la situation réelle de leur société, tandis que les investisseurs (outsiders) doivent se baser sur des informations publiques, souvent techniques, fragmentaires ou stratégiquement présentées.

C'est dans cet écart que s'inscrit le rôle fondamental des analystes financiers, perçus comme des intermédiaires informationnels. Leur fonction consiste à traduire des données comptables complexes, à interpréter les résultats financiers et à formuler des recommandations claires et compréhensibles pour les investisseurs. Par cette médiation, les analystes contribuent à réduire les asymétries d'information sur les marchés et, en théorie, à améliorer l'efficience informationnelle. Cependant, leur rôle pose également des enjeux critiques : l'accès différencié à l'information, les relations privilégiées avec les directions, ou encore les biais dans l'interprétation des données soulèvent la question de la neutralité et de la qualité du savoir financier qu'ils diffusent.

Abhayawansa & Abeysekera (2009) soulignent que les analystes sell-side contribuent à renforcer l'efficience des marchés en intégrant des informations pertinentes dans les prix des actions, ce qui participe à une meilleure transparence des marchés financiers. Toutefois, ce rôle d'intermédiaire comporte également des risques importants. Xing (2015) montre que les analystes peuvent parfois exploiter leur accès privilégié à l'information corporate en divulguant sélectivement certaines données, au bénéfice d'acteurs spécifiques du marché, souvent institutionnels, au détriment des autres. Cette pratique soulève des inquiétudes en matière d'équité sur les marchés financiers, en ouvrant la voie à des avantages informationnels inéquitables et à des formes d'asymétrie renforcée entre investisseurs.

3.5 La relation entre les prévisions de résultats et les recommandations boursières

Par ailleurs, la relation entre les prévisions de résultats et les recommandations boursières a fait l'objet de nombreux travaux. Si certains chercheurs estiment que les analystes s'appuient principalement sur leurs estimations de bénéfices pour formuler leurs recommandations, d'autres soulignent le rôle déterminant de facteurs qualitatifs tels que la crédibilité du management, le positionnement concurrentiel ou encore les tendances macroéconomiques (Bradshaw, 2004). Francis & Soffer (1997) observent que, bien que les prévisions de résultats soient en général plus informatives, les

recommandations boursières sont souvent davantage influencées par des facteurs externes, ce qui en fait des indicateurs moins fiables de la valeur intrinsèque des entreprises.

L'interaction entre les prévisions de résultats et les recommandations boursières constitue un champ d'étude fondamental en finance. Les prévisions de bénéfices fournissent aux investisseurs des indications chiffrées sur la performance future attendue des entreprises, tandis que les recommandations boursières se présentent comme des conseils d'investissement opérationnels, fondés à la fois sur ces prévisions et sur des facteurs qualitatifs complémentaires. Certaines études suggèrent que les analystes financiers s'appuient principalement sur leurs propres estimations de résultats pour formuler leurs recommandations, partant du principe que des prévisions précises devraient logiquement se traduire par des conseils d'investissement fiables (Bradshaw, 2004). Dans cette perspective, les analystes sont perçus comme des agents économiques rationnels, intégrant systématiquement les données financières dans leurs modèles de valorisation, dans le but de produire des recommandations objectives, reflétant la valeur intrinsèque des titres.

Cependant, des approches alternatives remettent en question cette hypothèse en soulignant le rôle central des facteurs qualitatifs et externes dans l'élaboration des recommandations boursières. Au-delà des simples prévisions de résultats chiffrées, les analystes prennent en considération des éléments tels que la crédibilité du management, la gouvernance d'entreprise, les tendances sectorielles ou encore les conditions macroéconomiques, lorsqu'ils émettent des recommandations d'achat, de conservation ou de vente. Les données empiriques indiquent que, bien que les prévisions de résultats constituent une source d'information précieuse, les recommandations boursières s'en écartent souvent, en raison de l'influence de considérations non financières : incitations individuelles, enjeux réputationnels, ou encore accès privilégié aux dirigeants (Francis & Soffer, 1997). Cette divergence soulève des interrogations quant à l'objectivité des recommandations, et questionne leur capacité à refléter la valeur fondamentale des titres, ou si elles sont plutôt conditionnées par des pressions externes.

Les recherches empiriques tendent à confirmer que les prévisions de résultats sont généralement plus informatives que les recommandations boursières. Une étude menée par Francis & Soffer (1997) montre que les prévisions de bénéfices formulées par les analystes sont, en moyenne, plus prédictives des mouvements de cours que leurs recommandations. Cette divergence peut s'expliquer par le fait que les recommandations sont souvent influencées par des facteurs sans lien direct avec la valeur intrinsèque de l'entreprise, tels que les relations entre analystes et dirigeants, les intérêts commerciaux de la société de courtage, ou encore la nécessité de s'aligner sur le sentiment général du marché. Les analystes employés par des banques d'investissement, par exemple, ont tendance à émettre des recommandations plus optimistes, en raison des conflits d'intérêts potentiels liés aux activités d'introduction en bourse et de conseil menées par leur établissement (Cheng, Liu & Qian, 2004). Ces pressions externes peuvent conduire les analystes à gonfler les notations attribuées aux actions ou à

éviter de publier des recommandations de vente, même lorsque leurs prévisions de résultats signalent une dégradation de la performance financière.

3.6 L'impact des avancées technologiques sur l'analyse financière

Au cours des dernières années, les avancées technologiques ont profondément transformé le paysage de l'analyse financière. Les modèles d'apprentissage automatique (machine learning) et les outils d'analyse de données massives (big data) permettent désormais le traitement en temps réel d'un volume considérable d'informations financières, remettant en question le rôle traditionnel des analystes humains (Crawford, Gray & Johnson, 2018). Ces modèles pilotés par l'intelligence artificielle offrent la possibilité d'améliorer la précision des prévisions, de réduire les biais humains, et de renforcer l'efficience des marchés en produisant des analyses instantanées et dynamiques.

Cependant, l'essor du trading algorithmique et des modèles de prévision automatisés soulève également des interrogations quant à la pertinence continue de la recherche traditionnelle menée par les analystes humains. À mesure que les modèles d'intelligence artificielle gagnent en sophistication, le rôle du jugement humain dans les recommandations boursières tend à s'amenuiser. Les analystes doivent dès lors s'adapter en intégrant ces outils technologiques dans leurs processus d'analyse, tout en mobilisant leur expertise qualitative pour interpréter les dynamiques de marché de manière critique et contextuelle. Au cours des dernières années, les avancées technologiques ont profondément modifié le paysage de l'analyse financière, en particulier dans le domaine des prévisions de résultats et des recommandations boursières. L'essor de l'analyse des données massives (big data) et des modèles d'apprentissage automatique (machine learning) a révolutionné les méthodes de génération des prévisions de bénéfices, en permettant le traitement en temps réel de volumes considérables de données financières. Alors que les analystes traditionnels s'appuient principalement sur les données historiques, les états financiers et les tendances sectorielles pour estimer les résultats des entreprises, les modèles alimentés par l'intelligence artificielle améliorent désormais la précision des prévisions en intégrant des sources de données alternatives, telles que les images satellites, les transactions par carte bancaire ou encore l'analyse de sentiment issue des médias d'information et des réseaux sociaux.

Les systèmes de trading algorithmique, qui s'appuient sur ces modèles d'apprentissage automatique, sont capables de réagir instantanément aux nouvelles données financières, rendant les recommandations humaines traditionnelles relativement lentes en comparaison (Crawford, Gray & Johnson, 2018). Ces modèles pilotés par l'intelligence artificielle présentent à la fois des opportunités et des défis. D'un côté, ils permettent d'accroître l'efficience et la précision des prévisions de résultats en éliminant les biais cognitifs humains et en traitant un volume d'informations bien supérieur à ce que peut gérer un analyste. D'un autre côté, ces évolutions soulèvent des questions fondamentales sur la pertinence de la recherche menée par les analystes traditionnels. Si les modèles de machine learning peuvent produire des prévisions de résultats plus fiables et plus cohérentes, les analystes humains

risquent-ils de devenir obsolètes ? De plus, l'opacité des algorithmes d'intelligence artificielle constitue un obstacle majeur pour les investisseurs, qui ont besoin de comprendre et de faire confiance aux fondements des recommandations automatisées.

Bien que les modèles de prévision basés sur l'intelligence artificielle permettent d'améliorer la précision des estimations, ils ne sont pas exempts de limitations. Leur dépendance aux données historiques implique qu'en cas de perturbations imprévues des marchés, telles que des crises financières ou des pandémies, ces modèles peuvent se révéler inefficaces. Par ailleurs, les modèles d'IA sont incapables d'évaluer certains aspects qualitatifs de l'analyse financière, tels que la gouvernance d'entreprise, les risques réglementaires, ou encore les orientations stratégiques du management. Dans ce contexte, les analystes humains conservent un rôle essentiel, en particulier pour contextualiser les données financières et interpréter les facteurs non quantifiables qui influencent la performance des actions.

L'analyse financière se dirige-telle vers une hybridation homme-machine? L'émergence de l'intelligence artificielle dans l'analyse financière ne se limite pas à une amélioration de la vitesse ou de la précision des prévisions: elle induit une reconfiguration profonde du rôle de l'analyste humain. Les modèles algorithmiques, en traitant des volumes massifs de données non structurées, redéfinissent les contours de ce qui est considéré comme une "expertise". Toutefois, cette évolution pose de nouvelles questions épistémologiques et éthiques: dans quelle mesure peut-on déléguer à des systèmes opaques le pouvoir d'émettre des recommandations d'investissement ? L'analyste humain devient alors un interprète critique, chargé non seulement de valider les résultats produits par l'IA, mais aussi d'en expliquer les ressorts et les limites. Cette hybridation des compétences suppose une évolution des formations, des outils de travail, et des régulations encadrant la transparence des modèles. À terme, l'IA ne remplace pas l'analyste, mais elle en transforme radicalement le métier, en le plaçant au croisement de la technologie, de la stratégie et de l'éthique.

3.7 Évolutions réglementaires et leur impact sur les pratiques de recherche des analystes financiers

Le paysage de l'analyse financière a également été profondément reconfiguré par les réformes réglementaires, notamment à travers des dispositifs tels que les Normes internationales d'information financière (IFRS) et la Directive européenne sur les marchés d'instruments financiers (MIFID II). Ces réglementations ont introduit des changements structurels majeurs dans la manière dont les analystes produisent et diffusent leurs recherches, affectant à la fois les prévisions de résultats et les recommandations boursières.

Les IFRS, qui ont remplacé les normes comptables nationales par une approche fondée sur des principes, ont profondément influencé les méthodes de prévision utilisées par les analystes financiers.

Contrairement aux normes comptables fondées sur des règles strictes, les IFRS offrent une plus grande marge d'appréciation managériale dans la présentation de l'information financière, ce qui a créé des difficultés pour les analystes cherchant à comparer des entreprises situées dans différentes juridictions (Aghanya, Agarwal & Poshakwale, 2020). La transition vers les IFRS a obligé les analystes à adapter leurs modèles de prévision, ce qui a entraîné une augmentation des écarts de prévision, notamment en raison des divergences dans la reconnaissance des produits, le traitement comptable des contrats de location, ou encore les tests de dépréciation d'actifs. Cette évolution a rendu les prévisions de résultats plus complexes, les analystes devant composer avec des interprétations variées des principes comptables et en évaluer les conséquences sur la performance financière rapportée.

L'analyse historique des grandes transformations réglementaires en matière de reporting financier permet d'ailleurs d'éclairer les défis contemporains liés à la mise en œuvre de la Corporate Sustainability Reporting Directive (CSRD). En effet, les précédents tels que l'adoption des normes IFRS en Europe ont montré que toute réforme comptable d'envergure entraîne des tensions entre la volonté d'harmonisation et la diversité des pratiques nationales, ainsi qu'un apprentissage progressif des acteurs impliqués (Soderstrom & Sun, 2007 ; Leuz & Wysocki, 2016). Ces travaux ont mis en évidence que les normes fondées sur des principes, comme celles de l'IFRS ou désormais de la CSRD, génèrent une forte variabilité interprétative, notamment en période de transition (Barth, Landsman & Lang, 2008). Par ailleurs, les recherches portant sur la régulation financière (Radaelli, 2013) ont souligné que les nouvelles obligations de reporting ne sont pas de simples outils techniques, mais des instruments de gouvernementalité, qui reconfigurent les relations entre entreprises, investisseurs et société civile. Dans ce contexte, les normes environnementales telles que la CSRD participent à une redéfinition du rôle des entreprises dans l'espace public, à travers l'extension du périmètre de la « comptabilité » aux dimensions sociales et écologiques de la performance (Hopwood, 2009 ; Gray, 2010). Les enseignements tirés de l'histoire des normes financières suggèrent ainsi que l'appropriation de la CSRD sera progressive, contestée et marquée par des ajustements institutionnels, autant qu'elle constituera un vecteur de transformation des pratiques managériales et des dispositifs d'évaluation.

La directive MIFID II, entrée en vigueur en 2018, a également profondément transformé l'écosystème de la recherche financière en imposant la dissociation des coûts de recherche des commissions de courtage. Avant cette réforme, les banques d'investissement et les sociétés de courtage fournissaient généralement des rapports d'analystes dans le cadre d'un ensemble de services groupés incluant l'exécution des ordres. MIFID II a toutefois exigé que les gestionnaires d'actifs paient explicitement pour accéder à la recherche, ce qui a réduit la propension des sociétés buy-side à acheter des analyses produites par les analystes sell-side. Cette nouvelle configuration a entraîné une réduction significative des budgets alloués à la recherche, forçant les analystes sell-side à opérer des coupures de couverture, en particulier à l'égard des entreprises de petite et moyenne capitalisation (Aghanya et al., 2020). Cette

diminution de la couverture analytique pose un enjeu majeur pour l'efficience des marchés, dans la mesure où les investisseurs disposent désormais de moins de prévisions indépendantes et de recommandations boursières fiables concernant les sociétés les moins visibles du marché.

Par ailleurs, la directive MIFID II a modifié les incitations auxquelles sont soumis les analystes sell-side, les menant à réorienter leur travail principalement vers les clients institutionnels, au détriment des investisseurs individuels. Si l'accent mis par la réglementation sur la transparence a, dans certains cas, permis une amélioration de la qualité de la recherche en réduisant les conflits d'intérêts, cette réforme a également généré des effets inattendus. Confrontés à une baisse de leur rémunération, certains analystes ont choisi de se reconvertir du côté buy-side, entraînant ainsi une concentration accrue de l'expertise en matière de prévision financière entre les mains des grands investisseurs institutionnels.

3.8 Conclusion : l'évolution du rôle des analystes financiers

Les fondements théoriques des prévisions de résultats et des recommandations boursières formulées par les analystes sell-side demeurent un sujet de débat académique. Si les théories financières classiques postulent que les analystes agissent comme des agents rationnels, intégrant l'ensemble des informations disponibles dans leurs modèles, les résultats empiriques mettent en évidence l'existence de biais systématiques, de pressions externes et de l'influence des changements réglementaires sur leur comportement. Par ailleurs, le rôle croissant des technologies avancées dans l'analyse financière remet en question les fonctions traditionnelles des analystes, en soulevant des interrogations sur la pérennité de la recherche humaine dans un environnement de marché de plus en plus dominé par les modèles algorithmiques.

Comprendre ces dynamiques apparaît essentiel pour évaluer la fiabilité de la recherche financière et son impact global sur l'efficience des marchés. Si les avancées technologiques permettent d'améliorer la précision des prévisions, les analystes humains demeurent indispensables pour interpréter les facteurs qualitatifs et contextualiser les informations financières. Dans un secteur en constante évolution, les analystes doivent s'adapter en intégrant les outils issus de l'intelligence artificielle, tout en préservant leur fonction d'interprètes critiques des données financières.

4. Lecture transversale des trois articles

Cette section propose une lecture transversale et intégrée des trois articles constitutifs de la thèse, en croisant leurs objectifs, méthodologies, résultats et implications. Elle met en lumière leur complémentarité à travers cinq axes : les ancrages théoriques, les échantillons mobilisés, les démarches méthodologiques, les résultats empiriques et les implications pratiques, notamment en matière de régulation.

Le tableau 1 présente une synthèse de trois contributions récentes portant sur le comportement des analystes financiers en période de bulle spéculative et sur l'influence des régulations encadrant leurs recommandations. Chaque article explore un aspect distinct mais complémentaire, allant de l'impact de la bulle Internet sur les recommandations des courtiers, à l'analyse des prévisions des analystes au sommet de cette bulle, jusqu'à l'effet des régulations sur la qualité des estimations produites. Le premier article a été publié en 2024 dans la Review of Accounting and Finance (RAF-04-2024-0153.R2) les deux autres sont en cours de soumission pour publication. Deux de ces travaux ont été retenus pour des communications dans des colloques internationaux de renom en 2024, soulignant leur pertinence scientifique et leur reconnaissance académique.

L'article 1 examine en profondeur l'effet de la bulle internet sur les recommandations des analystes financiers, notamment en matière de qualité de recommandation, dispersion, performance des portefeuilles, et rang des brokers. Ces thématiques relèvent directement du champ éditorial de Review of Accounting and Finance, qui publie régulièrement des travaux traitant du comportement des analystes, de l'impact des biais informationnels, des relations entre recommandations financières et performances de marché, et de l'analyse empirique des données financières. L'article propose une analyse multi-niveaux (broker, equity) sur plus d'1 million de recommandations en utilisant des métriques et modèles rarement mobilisés conjointement dans la littérature (dispersion standardisée, performances relatives basées sur indices équi-pondérés, etc.). Ce niveau de rigueur est recherché par Review of Accounting and Finance, qui valorise les articles empiriques fondés sur des bases de données solides, couplés à une analyse économétrique robuste. L'article discute non seulement des implications théoriques des bulles financières sur le comportement des analystes, mais également des impacts pratiques pour les investisseurs institutionnels, notamment en matière de lecture des classements de brokers et d'utilisation des recommandations en temps de crise. Ce double positionnement (académique et managérial) correspond exactement à l'audience cible de la revue. Des travaux précédemment publiés dans Review of Accounting and Finance (sur les bulles financières, les biais comportementaux des analystes, ou la performance des recommandations) trouvent un écho direct dans la contribution de l'article, qui propose une extension temporelle, géographique (marché européen) et conceptuelle (passage de l'analyse individuelle à celle des brokers).

L'article 2 a été présenté au colloque de l'EAA en mai 2024, et l'article 3 est en état de rédaction avancée (working paper).

Tableau 1. Liste des 3 articles

Article	Nom de publication en anglais	Traduction en français	Publication / communication
1	The impact of the internet bubble on broker recommendations	L'impact de la bulle Internet sur les recommandations des courtiers	Review of Accounting and Finance, Review of Accounting and Finance, Vol. 24, n°3, pp. 286-309 Colloque ACIEK Paris 05/06/24
2	Spotting the peak of the dot-com bubble: the lessons of sell side analysts behavior through their earnings forecast	Comment repérer le sommet de la bulle Internet : les enseignements du comportement des analystes sell-side à travers leurs prévisions de résultats	Colloque European Accounting Association Bucarest 15/05/24, ciblage de revue
3	When Enforcement Matters: The Conditional Impact of IFRS on Analysts' Forecasts Across Europe	Quand la discipline institutionnelle fait la différence: l'impact conditionnel des IFRS sur les prévisions des analystes en Europe	Phase de rédaction avancée / working paper

4.1 Taxonomie de la recherche sur les estimations de bénéfices

La figure1 intitulée « Taxonomie de la recherche sur les estimations de bénéfices », propose une lecture systémique des grandes orientations de la recherche académique dans le domaine de l'analyse financière, en particulier celle liée aux prévisions des analystes. Adaptée des travaux de Ramnath, Rock et Shane (2008), cette taxonomie met en évidence une articulation dynamique entre les fondements théoriques de la finance de marché, les pratiques professionnelles des analystes, et les observations empiriques issues des comportements de marché. Elle permet ainsi de situer le cadre général dans lequel s'inscrit la présente thèse, tout en mettant en lumière les axes spécifiques sur lesquels elle apporte une contribution originale.

La théorie de l'efficience des marchés constitue le point de départ de cette structure conceptuelle. Elle postule que l'ensemble de l'information pertinente est immédiatement intégré dans les prix des actifs, rendant inutile toute tentative de battre le marché par la seule analyse de données publiques. Toutefois, les écarts récurrents observés entre les estimations des analystes et les résultats réels des entreprises questionnent cette hypothèse centrale. Ces décalages suggèrent que des imperfections informationnelles ou comportementales peuvent perturber la formation des prix, et qu'il est pertinent d'explorer les conditions dans lesquelles ces estimations sont produites, interprétées et utilisées.

La première strate de la taxonomie s'intéresse à l'expertise des analystes, en examinant les sources d'information qu'ils mobilisent et leurs méthodes de travail. Elle soulève des interrogations sur la nature du jugement professionnel dans un environnement incertain. Vient ensuite le processus de décision, un axe central dans le cadre de cette thèse, comme l'indique l'étoile rouge dans cette zone de la figure. L'analyse porte ici sur ce que produisent concrètement les analystes – estimations de bénéfices, objectifs de cours, recommandations – ainsi que sur la dispersion observée entre ces prévisions. Cette dispersion est un indicateur précieux, susceptible de révéler l'hétérogénéité des sources d'information, des méthodes, voire des biais comportementaux ou stratégiques.

La troisième étape du schéma analyse l'impact des prévisions sur les marchés financiers, en explorant comment les estimations sont reçues, interprétées et intégrées par les investisseurs. Cette dimension interroge la valeur informationnelle des analyses publiées, mais elle ne constitue pas un champ d'investigation direct de la présente recherche.

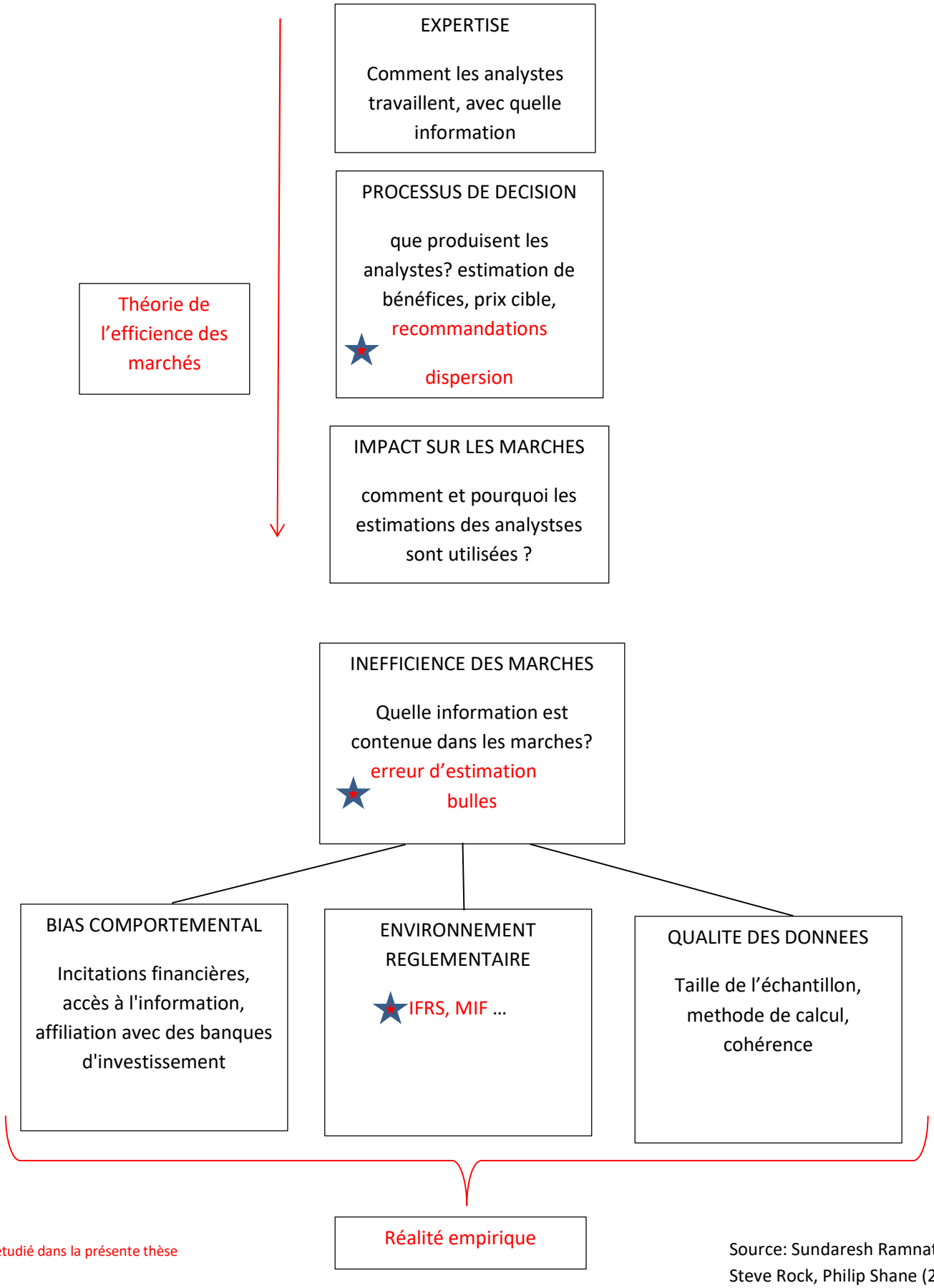
En revanche, la thèse s'intéresse de près à la problématique de l'inefficience des marchés, autre zone marquée par une étoile rouge dans la figure. Il s'agit ici d'identifier quelles informations sont effectivement incorporées dans les prix, et quelles erreurs d'estimation ou dynamiques spéculatives en résultent. Cette réflexion se situe au croisement des approches théoriques et empiriques, en lien avec les débats actuels sur la rationalité limitée des acteurs et les frictions informationnelles.

Afin de mieux comprendre les origines de ces inefficiences, la taxonomie distingue trois axes explicatifs : les biais comportementaux, l'environnement réglementaire et la qualité des données. Parmi ces trois dimensions, la thèse porte une attention particulière à l'environnement réglementaire, comme l'indique également une étoile rouge dans cette section. Plus précisément, elle examine les effets des dispositifs normatifs (tels que les IFRS ou les directives européennes comme MIFID) sur la qualité et la transparence des informations disponibles, ainsi que sur les comportements des analystes financiers. La thèse explore comment ces cadres institutionnels influencent la production et la diffusion des prévisions, et dans quelle mesure ils peuvent réduire, ou au contraire renforcer, les asymétries d'information.

Ainsi, la présente thèse s'inscrit dans trois sous-domaines de la taxonomie : d'une part, l'étude du processus décisionnel des analystes et des déterminants de la dispersion des prévisions ; d'autre part, l'analyse des manifestations d'inefficience informationnelle sur les marchés ; enfin, l'examen de l'environnement réglementaire comme facteur structurant des pratiques d'analyse. Ce positionnement interdisciplinaire, à la croisée de la finance empirique, de la régulation comptable et de la sociologie des organisations, offre une lecture renouvelée des mécanismes de production et de réception des prévisions financières.

La figure fonctionne ainsi non seulement comme une carte conceptuelle des recherches passées, mais aussi comme un outil de cadrage pour la construction de la problématique de la thèse. Elle permet de situer précisément les contributions proposées au sein d'un champ vaste et complexe, tout en mettant en évidence les choix délibérés d'angle d'analyse.

Figure 1 : Taxonomie de la recherche sur les estimations de bénéfices



Source: Sundaresh Ramnath, Steve Rock, Philip Shane (2008)

4.2 Analyse intégrée des déterminants théoriques

Le rôle des analystes financiers, notamment ceux du sell-side, reste fondamental dans la dynamique des marchés de capitaux, en raison de leur capacité à influencer les décisions d'investissement à travers leurs prévisions de résultats et recommandations boursières. Les différentes théories mobilisées pour comprendre leur comportement (rationalité, biais comportementaux, conflits d'intérêts et asymétries d'information) révèlent la complexité de leur fonction et la diversité des facteurs qui influencent leurs prévisions. En croisant ces approches avec les conclusions des trois articles joints, on obtient une lecture plus nuancée et actualisée de l'efficacité des analystes.

La théorie des anticipations rationnelles postule que les analystes exploitent l'ensemble des informations disponibles pour formuler des prévisions non biaisées. Toutefois, cette hypothèse est régulièrement remise en question. L'article 1 montre que pendant des périodes d'instabilité comme la bulle internet, les recommandations ont montré une dispersion accrue, mettant en doute l'idée d'un traitement strictement rationnel de l'information. Les performances des portefeuilles fondés sur ces recommandations ont aussi souffert, confirmant que même les analystes les plus réputés peuvent faillir sous des conditions de marché extrêmes. Par ailleurs, l'article 2 démontre que, bien que des réformes réglementairess comme les IFRS aient tenté d'améliorer la qualité des prévisions, les erreurs d'estimation persistent, particulièrement lors des périodes de crise où la volatilité de marché réduit la capacité d'anticipation précise.

Cette remise en cause de la rationalité absolue s'inscrit dans le cadre de la finance comportementale, qui met en lumière l'influence des biais cognitifs sur le jugement des analystes. Des comportements grégaires, comme observé dans l'article 1, montrent que les analystes ont tendance à s'aligner sur la moyenne du marché pour éviter les risques réputationnels. Ce comportement mimétique réduit la diversité des opinions et peut accentuer les bulles spéculatives, comme démontré lors de la bulle dot-com. L'excès de confiance est un autre biais marquant: les analystes surestiment leur capacité à prédire les résultats, ce qui génère des recommandations exagérément optimistes, notamment lorsqu'ils entretiennent des relations étroites avec les entreprises analysées. Ce constat est renforcé dans l'article 2, où la persistance des erreurs d'estimation de bénéfices malgré la proximité de la date de publication des résultats suggère que la subjectivité joue un rôle non négligeable.

La théorie principale invoquée par l'article 3 est la théorie institutionnelle, selon laquelle l'efficacité des réformes comptables, telles que l'adoption des normes IFRS, dépend fortement du contexte institutionnel dans lequel elles sont mises en œuvre. L'étude s'appuie sur l'idée que les normes internationales ne produisent pas uniformément les mêmes effets dans tous les pays, mais que leurs résultats sont conditionnés par la qualité des institutions locales, notamment la force de l'application juridique et la protection des investisseurs. En mobilisant notamment le cadre de Byard, Li et Yu (2011), l'article montre que l'impact des IFRS sur la précision et la dispersion des prévisions des

analystes financiers varie selon le degré d'alignement préalable avec les normes IFRS et la robustesse du système juridique national. Cette approche souligne que les réformes globales n'ont d'effet concret que si elles sont accompagnées d'un environnement institutionnel favorable, rejoignant ainsi les postulats centraux de la théorie institutionnelle.

En lien avec la théorie de l'asymétrie d'information, les analystes sont vus comme des médiateurs entre les dirigeants d'entreprise, détenteurs d'une information privilégiée, et les investisseurs. Leur rôle est d'interpréter les données complexes pour les rendre exploitables. Or, comme le montre l'article 2, l'accès différencié à l'information, combiné à des incitations biaisées, peut aboutir à une diffusion sélective de données, favorisant certains acteurs institutionnels au détriment des petits porteurs. En parallèle, l'article 3 indique que la mise en œuvre de normes IFRS a permis une certaine convergence dans la qualité de l'information entre pays, mais avec une efficacité très dépendante du contexte légal et de la rigueur des audits.

Enfin, la relation entre prévisions de résultats et recommandations boursières révèle des tensions entre données quantitatives et jugements qualitatifs. Si, comme le suggère Bradshaw (2004), les analystes s'appuient théoriquement sur les bénéfices prévisionnels pour guider leurs recommandations, les données des articles indiquent que d'autres éléments, tels que la réputation de l'équipe dirigeante ou les conditions macroéconomiques, influencent significativement ces recommandations. L'article 1 montre que ces recommandations s'écartent fréquemment des prévisions chiffrées, en particulier dans des contextes spéculatifs ou de forte incertitude.

Les trois articles confirment que les analystes financiers évoluent dans un environnement où les influences rationnelles, psychologiques, structurelles et technologiques se chevauchent. Si les réformes réglementaires ont partiellement amélioré la transparence et la qualité des prévisions, elles ont aussi entraîné une recomposition du marché de la recherche, avec une concentration accrue des expertises. La fiabilité des recommandations reste donc conditionnée à la fois par la qualité des modèles utilisés, la neutralité des incitations, et la capacité des analystes à intégrer des facteurs contextuels complexes dans leurs évaluations.

Tableau 2. Cadres théoriques mobilisés

Article	Théories mobilisées	Concepts-clés
1	Finance comportementale, biais cognitifs, bulle financière	Grégarisme, excès de confiance, distorsion des classements
2	Théorie de l'efficience informationnelle, finance comportementale, bulle financière	Dispersion, prévision, inversion du consensus
3	Théorie institutionnelle (common vs. civil law), intermédiation, théorie des signaux (asymétrie)	Réglementation, accès à l'information, application légale

4.3 Complémentarité empirique des trois articles : diversité des échantillons et richesse analytique

L'analyse conjointe des trois articles constitutifs de cette thèse repose sur l'exploitation de jeux de données particulièrement riches et exhaustifs, extraits de la base FactSet. Bien que chacun des articles aborde des objets empiriques distincts (recommandations boursières, estimations de résultats, ou effets de la régulation) la complémentarité des échantillons mobilisés renforce la cohérence méthodologique de l'ensemble du travail. Cette articulation s'opère tant par la variété des fréquences temporelles et des niveaux d'agrégation que par la profondeur historique et granulaire des données, permettant une exploration multi-échelle du comportement des analystes financiers sur près de trois décennies.

L'article 1 s'appuie sur un échantillon exceptionnel de plus d'un million de recommandations boursières, émises par les maisons de courtage de 1994 à 2005, à une fréquence mensuelle. Chaque observation correspond à une recommandation émise par un courtier donné pour une entreprise cotée à une date précise, permettant ainsi une analyse fine du comportement des analystes sur le court terme et en période de forte volatilité, notamment autour de la bulle Internet. L'unité d'observation, centrée sur la maison de courtage, autorise l'étude de la dispersion des recommandations, des comportements mimétiques et de l'évolution des performances sur le marché. Grâce aux données par courtier il a été possible de comparer les performances et d'établir des classifications année après année.

L'article 2, quant à lui, se concentre sur les estimations de résultats des analystes sur la même période (1994–2005), mais adopte une fréquence trimestrielle et une agrégation au niveau de la société. Chaque donnée correspond à une médiane des estimations produites à un trimestre donné pour une entreprise donnée, ce que l'on désigne comme le consensus de place. L'échantillon, qui comprend près de 30 000 observations, est moins massif que celui du premier article puisqu'il est trimestriel et agrégé au niveau du consensus, mais offre une vision consolidée des anticipations du marché. Ce niveau d'agrégation permet de mesurer la précision des prévisions ex ante par rapport aux résultats ex post, tout en neutralisant les effets idiosyncratiques des analystes individuels.

L'article 3 complète cet ensemble en élargissant l'horizon temporel et en introduisant une dimension réglementaire, en examinant l'impact de l'adoption des normes IFRS sur les prévisions des analystes entre 1993 et 2023. Il mobilise un jeu de données vaste, composé de plus de 850 000 estimations de résultats issues des 100 principales maisons de courtage opérant sur les entreprises du Stoxx 600. Contrairement aux deux premiers articles qui privilégient une approche descriptive et comportementale, ce troisième volet adopte une perspective quasi-expérimentale à travers l'utilisation d'un modèle en difference-in-differences inversé (DiD in reverse). Ce dispositif permet de capter les effets différenciés de la réforme comptable selon la qualité institutionnelle des pays concernés. L'approche par groupes de pays (légalement disciplinés vs indisciplinés) enrichit l'analyse comparative et offre un éclairage inédit sur les conditions d'efficacité des réformes internationales. Ainsi, l'articulation des trois articles, au-delà de la complémentarité des objets étudiés, réside dans leur capacité commune à mobiliser les données à différents niveaux (courtier, entreprise, pays) pour produire une lecture multifacette du rôle des analystes financiers dans les marchés européens.

Tableau 3. Méthodologies et données

Article	Méthodologie	Univers d'étude	Taille de l'échantillon
1	Étude empirique sur recommandations	Données exhaustives à l'échelle de la population	1 058 296 recommandations. de 12/31/1993 à 12/31/2005, fréquence mensuelle
2	Analyse des prévisions de consensus (dispersion & révision)	Composants de l'indice Europe STOXX 600 100 plus gros courtiers mondiaux qui contribuent au consensus de la base Factset	29 786 consensus d'estimation de bénéfices– de Décembre 1994 à Mars 2006 fréquence trimestrielle
3	Étude comparative pré/post normes IFRS, reverse diff. in diff		850 453 estimations de courtiers, du 31/12/1993 au 31/12/2023 fréquence trimestrielle

Toutes ces données, intègrent également des métadonnées détaillées relatives au pays, au secteur d'activité et à la capitalisation boursière des entreprises suivies, ce qui permet d'analyser l'impact différencié des régulations (IFRS) et des crises (internet, subprime, COVID) selon les secteurs, la géographie ou la taille des entreprises.

La complémentarité des trois jeux de données se manifeste ainsi à plusieurs niveaux : d'abord, par la diversité des unités d'observation (courtier vs entreprise), ensuite par la variation des fréquences (mensuelle vs trimestrielle), enfin par la richesse temporelle, allant de l'analyse d'un moment de crise

(article 1), à une vision agrégée du consensus (article 2), jusqu'à une approche longitudinale des effets de la régulation (article 3). Cette diversité renforce la robustesse des conclusions empiriques, tout en offrant une lecture intégrée du comportement des analystes financiers sur le long terme.

Tableau 4. Analyse descriptives globale des données

Article	Nature des données brutes	Fréquence	Champs de la base de données
1	Recommandations (achat, vente, neutre)	Mensuelle	Société cotée Année fiscale Maison de courtage (courtier) Pays Secteur Capitalisation boursière
2	Estimations de BNA (bénéfice par action)	Trimestrielle	
3			

4.4 Trois méthodologies pour un objet commun : une exploration croisée des recommandations, estimations et effets réglementaires

Au-delà de la richesse des données mobilisées, les trois articles de cette thèse se distinguent par une complémentarité méthodologique forte, qui permet d'aborder la question du comportement des analystes financiers sous des angles variés et complémentaires. Chaque article adopte une stratégie empirique spécifique, articulée autour de son objet d'étude et de sa perspective théorique dominante, tout en s'inscrivant dans un cadre méthodologique rigoureux et cohérent.

L' impact des biais cognitifs est renforcé par les dynamiques européennes. Des biais tels que :l'optimisme (surévaluation des performances futures), le biais de confirmation (ancrage aux prévisions initiales), le biais de saillance (sur-réaction aux données spectaculaires), sont renforcés dans le cadre européen, notamment à cause de l'absence de coordination macroéconomique forte à l'époque, de l'environnement sectoriel très exposé aux effets de mode spéculatifs. Ces biais ne sont pas considérés comme des éléments périphériques, mais sont directement intégrés dans les modèles économétriques et financiers. Concrètement, ils apparaissent au cœur même des variables à expliquer : les erreurs de prévision constituent une mesure observable de ces biais cognitifs, dans la mesure où elles traduisent l'écart persistant entre les anticipations des analystes et les résultats effectivement observés. De la même manière, l'analyse des distributions des prévisions permet de mettre en évidence la dispersion ou la concentration des estimations, révélant ainsi des phénomènes collectifs tels que l'excès de confiance, le mimétisme ou la tendance au consensus forcé. Les méthodlogies statistiques utilisées permettent donc d'objectiver l'existence des biais, non pas comme de simples anomalies qualitatives, mais comme des régularités quantitatives mesurables qui structurent la production de connaissances financières.

L'article 1, centré sur les recommandations boursières, adopte une approche quantitative descriptive et comparative, en analysant la dispersion et la qualité des recommandations issues de plus d'un million d'observations mensuelles. Le traitement des données au niveau des maisons de courtage permet de mesurer les différences entre institutions en matière de performance, de constance, ou de comportements mimétiques. L'article utilise notamment des indicateurs de dispersion, des analyses de quartiles, et des mesures de transition inter-quartiles pour évaluer la stabilité des classements des courtiers dans le temps. Cette approche permet de mettre en évidence l'instabilité structurelle des recommandations, leur sensibilité aux cycles de marché, et l'effet des bulles spéculatives sur la qualité de la recherche.

L'article 2 adopte une méthodologie différente, fondée sur une analyse de la précision des prévisions de résultats agrégées. En travaillant à partir du consensus de place (médiane des estimations formulées pour chaque entreprise) l'article évalue la valeur prédictive des estimations d'analystes en les confrontant aux résultats estimés ex post. Des analyses de variance complètent l'approche pour identifier les sources de biais potentiels. Ce second article offre ainsi une perspective macro-analytique, centrée sur la capacité collective des analystes à anticiper correctement les performances des entreprises, indépendamment des dynamiques individuelles observées dans l'article 1.

L'article 3, enfin, mobilise une méthodologie économétrique plus avancée, en recourant à un modèle de difference-in-differences inversé (DiD in reverse) pour évaluer l'impact de l'adoption des normes IFRS sur la dispersion et la précision des prévisions des analystes. Ce cadre quasi-expérimental permet d'isoler l'effet causal de la réforme comptable en comparant l'évolution des comportements d'estimation entre différents groupes de pays, classés selon leur niveau d'application juridique et la proximité de leur référentiel comptable antérieur avec les IFRS. Cette approche apporte une contribution méthodologique originale en démontrant que les effets d'une norme globale comme les IFRS sont loin d'être homogènes, et dépendent des structures nationales de gouvernance. À travers ces trois méthodologies complémentaires (descriptive, prédictive, et causale) la thèse propose une exploration complète et nuancée du comportement des analystes financiers, révélant à la fois les régularités statistiques, les capacités anticipatrices et les conditions d'efficacité des réformes comptables.

Que ce soit l'artilce 2 ou 3 le cœur de la méthodologie repose sur le calcul d'erreurs de prévision, souvent exprimées en pourcentage par rapport aux résultats réels. L'apport méthodologique vient du constat que les estimations d'analystes et donc le consensus est différent du bénéfice publié même après la date de publication. Du point de vue de l'analyste, cette différence n'est donc pas une erreur, mais l'expression de son point de vue qui est différent de celui du management de l'entreprise. Il est donc plus pertinent de calculer une révision des estimations de bénéfice par rapport à l'estimation finale qu'une erreur par rapport au bénéfice publié. De plus de nombreuses approches tentent de

« normer » les bénéfices par action (BNA) en les divisant par le prix de l'action. Ce calcul proche d'une rentabilité financière (ROE) ajoute une dimension supplémentaire de volatilité liée au cours qui est beaucoup plus forte que celle du bénéfice, et qui n'est pas souhaitable.

Tableau 5. Positionnement des 3 articles selon leur question centrale

Article	Question centrale	Objet étudié	Niveau d'analyse	Années fiscales étudiées
1	Comment les recommandations des analystes ont-elles réagi durant la bulle Internet ?	Recommandations boursières	Agrégé (marché et sociétés de courtage)	1994-2005
2	Peut-on détecter les signaux précurseurs d'une bulle via les prévisions des analystes ?	Prévisions de résultats	Agrégé (marché et secteurs)	1994-2005
3	Quel est l'impact de la réforme réglementaire des IFRS sur la qualité des prévisions ?	Prévisions de résultats	Agrégé (marché, pays, secteurs)	1994-2023

Ainsi, la complémentarité méthodologique entre les trois articles se manifeste clairement : une approche comparative et descriptive (article 1), une évaluation agrégée de la précision (article 2), et une analyse causale et économétrique (article 3). Ce triptyque permet de croiser les niveaux d'analyse : micro (courtier), méso (consensus), et macro (réglementation), et de confronter les comportements observés des analystes aux cadres théoriques mobilisés (rationalité, biais, conflits d'intérêts, asymétrie d'information). La combinaison de ces méthodes renforce la validité externe des résultats et permet d'appréhender la complexité du rôle des analystes dans l'écosystème financier contemporain.

4.5 Complémentarité des résultats empiriques

L'apport méthodologique des trois articles constituant cette thèse ne se limite pas à la diversité des approches statistiques ou des unités d'analyse ; il se traduit également par une complémentarité forte dans les types de résultats produits, chacun éclairant une facette différente du comportement des analystes financiers. Cette articulation méthodologique permet ainsi de construire une compréhension nuancée des dynamiques de prévision et de recommandation, tout en interrogeant leur efficacité et leur robustesse en fonction du contexte économique et réglementaire.

L'article 1, qui s'appuie sur plus d'un million de recommandations issues de courtiers européens entre 1994 et 2005, mobilise des méthodes descriptives, comparatives et dynamiques. L'analyse des transitions entre quartiles de performance des maisons de courtage permet de mesurer l'instabilité structurelle des recommandations, notamment en période de crise. Les résultats révèlent une forte

volatilité des classements : moins de 30 % des courtiers restent dans le même quartile d'une année sur l'autre. De plus, la performance des portefeuilles construits sur ces recommandations montre que seule une minorité parvient à battre le benchmark de manière récurrente, soulignant ainsi les limites de la fiabilité des recommandations, particulièrement lors de bulles spéculatives.

L'article 2 adopte une méthodologie plus agrégée en travaillant sur le consensus d'estimations de résultats par entreprise, à fréquence trimestrielle, pour la même période. À travers le calcul des erreurs de prévision, il permet de quantifier la précision collective des analystes. Les résultats montrent que, bien que le consensus s'améliore à mesure que la date de publication approche, des écarts significatifs persistent, notamment dans certains secteurs ou capitalisations. L'étude révèle aussi des biais de prévision systématiques, particulièrement dans les périodes d'incertitude macroéconomique, ce qui confirme que même l'agrégation ne neutralise pas entièrement les déformations liées aux biais comportementaux ou aux incitations institutionnelles.

L'article 3 prolonge cette analyse en introduisant une dimension réglementaire et longitudinale, couvrant une période étendue de 1993 à 2023, et en s'intéressant à l'effet de l'adoption des normes IFRS sur les prévisions des analystes dans différents contextes institutionnels. Grâce à une modélisation en difference-in-differences inversée, il met en évidence que les effets des IFRS sont loin d'être homogènes : alors que les pays dotés d'un cadre juridique solide et d'une plus grande distance initiale aux normes IFRS (pays « disciplinés ») bénéficient d'une nette amélioration de la précision et d'une réduction de la dispersion des prévisions, les pays à faible force exécutoire (« indisciplinés ») n'en retirent que peu d'effets positifs. Ces résultats confirment que la régulation ne produit ses effets escomptés qu'en présence d'un environnement institutionnel favorable. Loin de valider l'idée d'une efficacité universelle des réformes comptables internationales, cet article montre que leur succès repose sur une articulation fine entre norme, contexte et capacité d'appropriation. En cela, il complète les deux premiers articles : là où le premier met en lumière la variabilité des recommandations individuelles, et le second les limites du consensus collectif, le troisième éclaire les conditions structurelles qui rendent ces pratiques plus ou moins efficaces.

Les trois articles mobilisent des méthodologies complémentaires (descriptive, comparative, agrégée et économétrique) pour produire des résultats qui se répondent et s'enrichissent mutuellement. L'analyse dynamique des recommandations (article 1), la mesure agrégée des erreurs (article 2), et l'évaluation causale de la régulation (article 3) offrent un panorama complet de la performance et des limites des analystes financiers dans différents contextes. Cette complémentarité méthodologique permet ainsi de consolider les résultats empiriques autour d'un constat central : la qualité de la recherche financière dépend moins de la sophistication des modèles que des incitations, de la structure du marché et du cadre réglementaire dans lequel elle s'inscrit.

4.6 Lecture intégrée du rôle des analystes financiers : complémentarité des implications issues des trois articles

Les trois articles qui composent cette thèse offrent des éclairages empiriques distincts mais profondément complémentaires sur le rôle et les limites des analystes financiers. Loin de produire des résultats isolés, chacun d'eux contribue à la construction d'un cadre d'analyse intégré, dans lequel se dessinent des implications convergentes en matière de fonctionnement des marchés, de qualité de l'information financière, et d'efficacité des régulations. Cette complémentarité des implications repose sur la diversité des angles d'attaque méthodologiques et temporels, mais surtout sur la cohérence des constats empiriques.

L'article 1, centré sur les recommandations boursières, met en évidence une volatilité importante dans la performance des courtiers, même parmi les acteurs les plus réputés. L'une des implications majeures de ces résultats est que les investisseurs ne peuvent accorder une confiance stable aux classements annuels des maisons de courtage. Le fait que les courtiers puissent passer d'un quartile à l'autre d'une année sur l'autre affaiblit l'idée d'une compétence stable, et remet en question l'usage des recommandations comme repères fiables dans un contexte de marché instable. Cela appelle à une réévaluation des outils de notation des analystes, et à un usage plus prudent de leurs recommandations par les investisseurs institutionnels comme individuels.

L'article 2 apporte une perspective plus agrégée en évaluant la précision des consensus d'estimations de résultats. Il montre que, malgré une amélioration de la précision à mesure que l'on se rapproche des publications de résultats, des erreurs structurelles persistent, notamment dans certains secteurs et segments de capitalisation. Ces résultats soulignent les limites de la sagesse collective du marché et rappellent que les consensus, bien qu'utiles, ne sauraient être interprétés comme des vérités statistiques. L'implication est double : pour les entreprises, ces résultats renforcent l'intérêt d'une communication financière claire et régulière ; pour les investisseurs, ils incitent à compléter l'analyse quantitative par une lecture qualitative des données et des signaux du marché.

L'article 3, en élargissant l'analyse à l'impact des normes comptables internationales (IFRS) sur le travail des analystes, introduit une dimension institutionnelle essentielle à la compréhension de leur efficacité. Il démontre que l'amélioration de la qualité des prévisions ne dépend pas uniquement de la standardisation des règles comptables, mais aussi de la robustesse des dispositifs d'application juridique. Cette conclusion a plusieurs implications majeures. D'abord, elle met en garde contre une approche uniforme de la régulation financière : les réformes globales comme les IFRS ne peuvent porter pleinement leurs fruits que dans des contextes nationaux disposant d'institutions solides, capables de garantir leur respect effectif. Ensuite, elle souligne le rôle des analystes comme relais conditionnel de la qualité comptable : leur capacité à produire des estimations fiables dépend du cadre réglementaire dans lequel ils opèrent. Enfin, elle interroge la capacité des marchés à s'autoréguler en

l'absence de dispositifs coercitifs adéquats. À l'échelle globale, l'article plaide donc pour une régulation différenciée, tenant compte des spécificités institutionnelles locales, et pour un renforcement des mécanismes d'enforcement dans les pays où la réforme demeure symbolique.

Pris ensemble, les trois articles dessinent une vision intégrée du rôle des analystes : intermédiaires imparfaits mais incontournables, dont l'utilité dépend à la fois de leur comportement individuel, de la dynamique collective du marché, et du cadre réglementaire dans lequel ils évoluent.

Tableau 6. Résultats clés & implications

Article	Résultats principaux	Implications
1	Forte dispersion en bulle, instabilité des performances, faible fiabilité des recommandations	Ne pas se fier aveuglément aux recommandations des analystes en période de crise. les bulles suivent des schémas similaires, ce phénomène peut s'étendre à tout marché soumis à des mouvements spéculatifs.
2	Prévisions convergentes → divergence pré-bulle : signal précurseur	Les inversions de dispersion peuvent alerter sur des bulles naissantes.
3	Pas d'effet globalement positif et homogène des normes IFRS sur les prévisions des analystes financiers.	Les réformes comptables internationales comme les IFRS ne peuvent produire des effets positifs qu'à condition d'être accompagnées par un cadre institutionnel solide.

Pris ensemble, les trois articles montrent que la valeur ajoutée des analystes dépend étroitement de leur environnement institutionnel, des incitations auxquelles ils sont soumis, et de la temporalité de leur intervention. Leurs prévisions et recommandations, bien qu'informées, ne sont ni stables, ni entièrement fiables, ni universellement utiles. Ces constats invitent à repenser le rôle des analystes comme interprètes contextuels de l'information, plutôt que comme fournisseurs d'une vérité prédictive unique.

4.7 Conclusion sur la cohérence et l'articulation entre les trois articles

Les trois articles présentent une connexion fondamentale à travers leur analyse du comportement des analystes financiers, de l'influence des dynamiques de marché sur leurs prévisions et recommandations, ainsi que du rôle des régulations dans la structuration de leur performance. En examinant successivement l'action des analystes durant la bulle Internet, la valeur prédictive de leurs prévisions de résultats, puis les effets des interventions réglementaires sur leur activité, ces études offrent une perspective globale et cohérente sur les facteurs qui influencent l'efficience des marchés et les décisions d'investissement.

La connexion entre ces trois articles devient évidente lorsqu'on considère leurs implications sur le comportement des analystes financiers et l'efficience des marchés. L'article 1 met en lumière la manière dont les bulles spéculatives créent un environnement où les recommandations des analystes deviennent fortement dispersées, ce qui nuit à leur fiabilité. L'article 2 prolonge cet argument en montrant que les prévisions de bénéfices des analystes suivent un schéma similaire : elles convergent pendant la montée spéculative et divergent fortement lors des corrections de marché. Cela suggère que les analystes sont sujets à des biais systématiques et que leurs capacités prédictives sont compromises dans des conditions de marché extrêmes. L'article 3 renforce cette lecture en révélant que l'efficacité des analystes dépend également du cadre institutionnel dans lequel ils opèrent. Dans les pays à fort pouvoir de contrainte juridique, l'adoption des IFRS améliore la précision et réduit la dispersion des prévisions, tandis que dans les contextes moins rigoureux, ces effets sont quasi inexistants.

La cohérence entre ces études se reflète dans leur recours commun à des méthodologies empiriques et à des ensembles de données étendus couvrant les marchés financiers européens. Chaque article utilise des modèles de régression, des tests de significativité statistique, ainsi qu'une analyse des prévisions ou recommandations financières sur de longues périodes. L'utilisation de données provenant de FactSet et de l'indice Europe Stoxx 600 garantit la comparabilité des résultats, permettant une compréhension cohérente de la manière dont la dynamique des marchés et les interventions réglementaires influencent le comportement des analystes. Les périodes couvertes par les études allant du début des années 1990 aux années 2020 offrent également une perspective longitudinale sur l'évolution des prévisions financières et des recommandations des sociétés de courtage, renforçant ainsi la solidité de leurs conclusions.

Malgré ces points de convergence, les études mettent également en évidence des différences importantes dans les mécanismes qui influencent le comportement des analystes. Alors que les articles 1 et 2 mettent l'accent sur des facteurs liés au marché, tels que la spéculation, le sentiment des investisseurs et les corrections boursières, l'article 3 recentre l'attention sur des facteurs structurels comme la régulation financière. Cette distinction est essentielle, car elle suggère que les capacités de prévision des analystes ne sont pas seulement influencées par les conditions extérieures du marché, mais aussi par l'environnement réglementaire dans lequel ils opèrent. En outre, les études diffèrent dans leur évaluation du comportement des analystes selon les horizons temporels. L'article 1 s'intéresse à la dispersion des recommandations à court terme et aux classements des maisons de courtage, tandis que l'article 2 examine l'évolution à plus long terme des prévisions de bénéfices. L'article 3 adopte une approche encore plus large en étudiant les impacts réglementaires sur plusieurs décennies et à travers plusieurs crises (non seulement la bulle Internet, mais aussi les subprimes et la crise du COVID), offrant ainsi une perspective structurelle sur les évolutions de la précision et de la dispersion des prévisions.

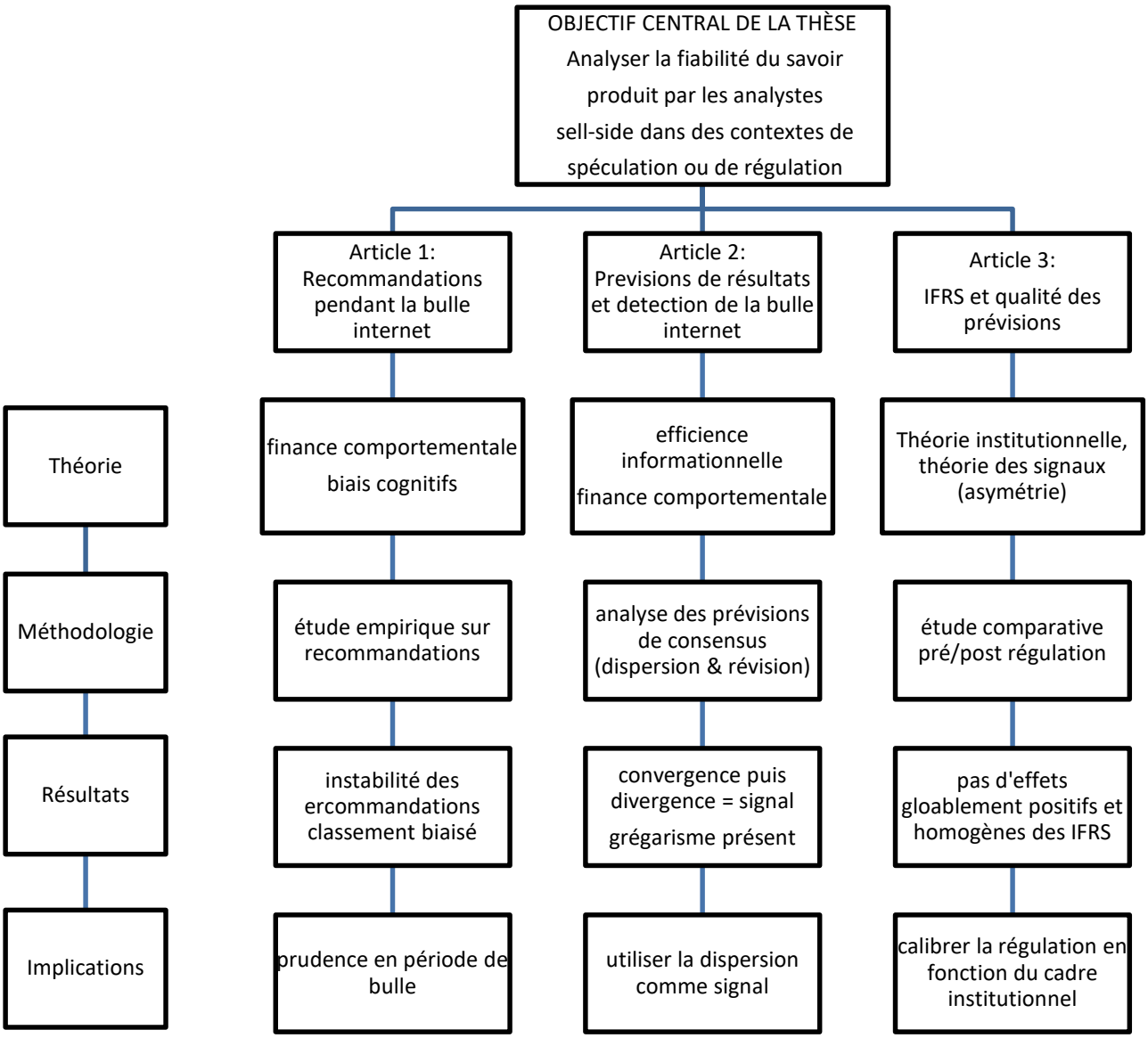
Ces résultats ont des implications plus larges qui mettent en lumière une interaction complexe entre la spéculation des marchés, le comportement des analystes et la supervision réglementaire. L'un des enseignements clés est que les analystes financiers, malgré leur expertise, ne sont pas à l'abri des pressions liées aux cycles de marché. L'augmentation de la dispersion des recommandations et des prévisions pendant les bulles spéculatives suggère que les analystes peinent souvent à fournir des évaluations indépendantes et objectives lorsque le sentiment du marché est excessivement optimiste ou pessimiste. Cela a des conséquences directes pour les investisseurs, car cela indique qu'une confiance excessive dans les recommandations des courtiers et les prévisions de bénéfices durant les périodes de forte volatilité peut être mal avisée. Les conclusions de l'article 3 suggèrent que l'adoption des normes IFRS n'a pas uniformément amélioré la qualité des prévisions des analystes en Europe : ses effets sont positifs uniquement dans les pays disposant d'un cadre juridique solide. Cette hétérogénéité montre que la réussite des réformes comptables internationales dépend étroitement de leur intégration institutionnelle et non de leur simple mise en œuvre formelle.

Travailler sur des événements anciens, tels que la bulle internet des années 2000 ou l'adoption des normes IFRS en 2005, peut paraître anachronique à première vue. Pourtant, ces périodes constituent des moments fondateurs pour comprendre les dynamiques actuelles des marchés financiers et du travail des analystes. D'une part, la bulle technologique a profondément révélé les limites des mécanismes de prévision en contexte spéculatif, fournissant un cadre d'analyse précieux pour interpréter les bulles plus récentes (cryptoactifs, tech post-COVID, etc.). D'autre part, l'adoption des IFRS représente l'une des réformes comptables les plus structurantes à l'échelle mondiale, dont les effets à long terme sur la qualité de l'information financière et la performance des analystes n'ont été que partiellement explorés. En s'appuyant sur un recul de près de deux décennies, notre étude permet de mieux comprendre l'interaction entre les normes, les institutions et les acteurs de marché dans un contexte de transformation réglementaire. Ces enseignements offrent des repères solides pour évaluer les réformes comptables à venir, mais aussi pour anticiper les comportements des analystes en période de volatilité ou face à des normes nouvelles, comme celles liées à la durabilité (ESRS, ISSB).

Dans l'ensemble, ces trois articles offrent une analyse approfondie du comportement des analystes financiers, apportant un éclairage sur la manière dont leurs recommandations et prévisions sont influencées par les conditions de marché et les évolutions réglementaires. L'article 1 met en évidence les difficultés auxquelles les analystes sont confrontés pour maintenir des recommandations cohérentes en période spéculative ; l'article 2 prolonge cette réflexion en analysant l'évolution des prévisions de bénéfices ; enfin, l'article 3 explore comment les réglementations influencent la précision et la dispersion des prévisions. Ensemble, ces études soulignent l'importance de prendre en compte à la fois la dynamique des marchés et les cadres réglementaires pour évaluer la fiabilité des analyses financières. La leçon générale à retenir est que, bien que les analystes financiers jouent un

rôle essentiel dans les décisions d'investissement, leurs performances dépendent fortement du contexte économique et réglementaire dans lequel ils évoluent.

Figure 2 : Carte conceptuelle de la lecture transversale des trois articles



5. Contributions de chacun des trois articles

5.1 L'impact de la bulle Internet sur les recommandations des courtiers

Le premier article examine le rôle des analystes financiers et de leurs recommandations durant la bulle Internet, une période marquée par une spéculation intense et une volatilité extrême des marchés. Les analystes, en tant qu'intermédiaires entre l'épargne et les marchés financiers, ont pour mission de formuler des prévisions de résultats et des recommandations boursières destinées à orienter les décisions d'investissement. Toutefois, dans un contexte de bulle spéculative, leur fiabilité analytique peut être compromise par des biais cognitifs, des comportements grégaires et diverses pressions externes. L'article cherche ainsi à déterminer dans quelle mesure la bulle Internet a influencé les recommandations des analystes et à évaluer si leurs prévisions sont restées fiables durant cette période de déséquilibre informationnel et émotionnel sur les marchés.

Sur le plan empirique, l'article s'appuie sur l'analyse de plus d'un million de recommandations boursières émises par les 100 principales sociétés de courtage sur 1 323 entreprises cotées dans l'indice européen DJ Stoxx 600, entre 1992 et 2005. Les résultats montrent que la dispersion des recommandations des analystes a considérablement augmenté avant et pendant la montée de la bulle Internet, traduisant une divergence d'opinions croissante : certains analystes demeurant sceptiques face à l'euphorie du marché, tandis que d'autres adoptaient un positionnement plus conformiste. Une fois la bulle éclatée, cette dispersion a diminué, suggérant un retour au consensus au fur et à mesure que les analystes ajustaient leurs recommandations en réponse à la correction des marchés. L'étude met ainsi en lumière les limites de la rationalité collective des analystes en période de forte instabilité, tout en soulignant l'impact des dynamiques spéculatives sur la production du savoir financier.

L'étude évalue également la performance des recommandations boursières des analystes en examinant leur efficacité dans un contexte de gestion de portefeuille. Les résultats montrent que la dispersion des performances de portefeuille est passée de 2,5 % avant la bulle à 5 % à son apogée, traduisant une volatilité extrême des marchés durant cette période. Cette forte hétérogénéité suggère que les sociétés de courtage ont éprouvé des difficultés à formuler des conseils d'investissement fiables, révélant une divergence marquée dans la qualité des recommandations émises par les analystes. Ces constats renforcent l'idée selon laquelle les périodes de bulle spéculative exacerbent les déséquilibres informationnels et fragilisent la fonction d'intermédiation des analystes financiers.

L'analyse de la performance des portefeuilles révèle également que la majorité des sociétés de courtage ont sous-performé l'indice de référence STOXX 600 pendant la bulle. Avant et durant la

phase spéculative, moins de 45 % des portefeuilles recommandés par les courtiers surperformaient le marché. En revanche, après l'éclatement de la bulle, cette proportion est montée à 60 %, traduisant un retour à des prévisions plus fiables et plus ancrées dans les fondamentaux. Ces résultats suggèrent que, durant la phase de spéculation intense, les recommandations des analystes étaient largement peu fiables, mais qu'elles ont regagné en précision une fois les mécanismes fondamentaux du marché rétablis.

Un autre résultat important de l'étude concerne l'impact de la bulle sur les classements des sociétés de courtage. L'analyse montre que les classements des analystes ont fortement fluctué durant la période spéculative. Plusieurs firmes historiquement positionnées dans le dernier quartile se sont soudainement retrouvées en tête des classements, tandis que d'autres, jusque-là bien classées, ont connu une chute brutale. Cette instabilité des performances suggère que la bulle a distordu les indicateurs traditionnels d'évaluation des analystes, rendant difficile la distinction entre les analystes réellement compétents et ceux ayant simplement profité des dynamiques de marché temporaires.

D'un point de vue théorique, l'étude confirme que les analystes financiers ne se comportent pas comme des acteurs parfaitement rationnels, et que leurs recommandations sont fortement influencées par les conditions générales du marché. Les résultats renforcent l'idée selon laquelle les comportements grégaires et l'excès d'optimisme ont été amplifiés durant la bulle Internet, compromettant la capacité des analystes à produire des prévisions financières rationnelles et objectives. En outre, l'instabilité des classements des analystes observée pendant cette période montre que les évaluations fondées sur la performance doivent être interprétées avec prudence, en particulier dans des contextes de spéculation intense où les repères analytiques traditionnels perdent en fiabilité.

L'étude offre également des enseignements précieux pour les investisseurs. Elle souligne la nécessité d'adopter une posture prudente à l'égard des recommandations des analystes en période de bulle financière, dans la mesure où leurs prévisions tendent à être moins fiables. Le suivi de la dispersion des recommandations peut ainsi constituer un indicateur précoce d'instabilité des marchés, en signalant les moments où les analystes peinent à formuler un consensus. En outre, l'étude met en évidence que les classements des sociétés de courtage ne reflètent pas toujours les compétences analytiques réelles, car ils peuvent être distordus par des fluctuations de marché extrêmes.

Cet article propose une analyse du comportement des analystes financiers en période de bulle spéculative, en s'appuyant sur le cas emblématique de la bulle Internet. Il montre que, dans un tel contexte, les recommandations des analystes deviennent peu fiables, que leurs classements sont profondément perturbés, et que la recherche financière doit être interprétée avec prudence. En identifiant ces dynamiques, l'article apporte une contribution significative aux débats sur l'efficience des marchés, sur les comportements collectifs des analystes, ainsi que sur les limites structurelles des recommandations émanant des sociétés de courtage.

5.2 Comment repérer le sommet de la bulle Internet : les enseignements du comportement des analystes sell-side à travers leurs prévisions de résultats.

Cet article examine l'impact de la bulle Internet sur les prévisions de résultats des analystes sell-side. L'étude se concentre sur le marché européen, en analysant plus particulièrement les entreprises de l'indice STOXX 600 sur la période allant de 1994 à 2005. La recherche s'appuie sur un ensemble de données inédit comprenant 29 786 prévisions de consensus, émises par les 100 principales sociétés de courtage. L'objectif est d'évaluer l'évolution du comportement des analystes tout au long de la montée spéculative puis de l'effondrement de la bulle Internet.

L'un des principaux objectifs de cette recherche est d'analyser les effets de la bulle Internet sur le comportement prévisionnel des analystes, au niveau des sociétés de courtage. Les auteurs testent deux hypothèses clés relatives à l'évolution des prévisions de résultats : la dispersion des estimations et la révision des prévisions. Les résultats montrent que, durant la phase de formation de la bulle, les estimations des courtiers avaient tendance à converger, entraînant une réduction de la dispersion. Cela suggère que les analystes étaient de plus en plus alignés dans leurs prévisions, probablement en raison d'un comportement grégaire ou de l'existence d'attentes de marché partagées. Cependant, malgré cette convergence apparente, la fréquence et l'ampleur des révisions ont augmenté. Les analystes ajustaient régulièrement leurs estimations à la hausse, traduisant l'optimisme croissant du marché et la tendance à suivre le sentiment positif entourant les valeurs technologiques.

À l'approche du sommet de la bulle puis à son éclatement, un changement marqué dans le comportement des analystes est observé : La dispersion des prévisions de résultats a fortement augmenté, ce qui signifie que les opinions des analystes sont devenues plus fragmentées. Ce changement traduit la disparition du consensus qui avait caractérisé la montée de la bulle, et révèle que les analystes avaient des difficultés à interpréter avec justesse les nouvelles conditions du marché post-bulle. Par ailleurs, les révisions de prévisions sont devenues plus erratiques, témoignant d'ajustements beaucoup moins coordonnés que durant la période d'euphorie boursière. Cette fragmentation post-bulle suggère que les analystes n'ont pas anticipé la correction, ce qui a conduit à une incertitude accrue et à une incohérence croissante dans leurs prévisions ultérieures.

L'article apporte des éléments probants montrant que les analystes n'agissaient pas en tant qu'acteurs pleinement rationnels, et que leur comportement prévisionnel était fortement influencé par le sentiment de marché et les pressions spéculatives. La convergence des estimations durant la montée de la bulle confirme l'existence d'un comportement grégaire, dans lequel les analystes tendent à aligner leurs prévisions sur les tendances dominantes du marché, soit pour réduire les risques réputationnels, soit pour répondre aux attentes des investisseurs. À l'inverse, la divergence observée après l'éclatement de la bulle reflète une perte de confiance généralisée et une incertitude accrue, à mesure

que les analystes tentaient de réévaluer leurs méthodologies dans un environnement devenu soudainement instable et difficile à interpréter.

La contribution majeure de l'étude réside dans l'identification d'une inversion de la courbe de dispersion des prévisions de résultats des analystes, juste avant le pic de la bulle Internet. Dans un premier temps, à mesure que la bulle se gonfle, les estimations des analystes convergent à l'approche de la publication des résultats, traduisant l'optimisme du marché et un comportement grégaire. Cependant, peu avant l'éclatement de la bulle, la dispersion des prévisions augmente fortement en fonction de l'horizon d'estimation, signalant une incertitude croissante et une divergence des opinions parmi les analystes. Le fait que cette inversion de courbe se soit produite avant la crise suggère qu'elle pourrait constituer un indicateur avancé utile pour anticiper les bulles de marché et les effondrements potentiels.

Par ailleurs, cette recherche contribue de manière significative aux débats plus larges sur l'efficience des marchés financiers et sur la fiabilité des prévisions des analystes en période de bulle spéculative. Les résultats suggèrent que les analystes, loin de se comporter comme des observateurs indépendants traitant objectivement l'information financière, ont en réalité participé au cycle spéculatif, en renforçant les tendances de marché plutôt qu'en les contrebalançant. Ces constats remettent en question la vision traditionnelle selon laquelle les prévisions des analystes constitueraient un mécanisme impartial au service de l'efficience des marchés.

Cette étude apporte un éclairage précieux sur la manière dont les analystes financiers ont réagi à la bulle Internet et sur l'évolution de leur comportement prévisionnel tout au long de sa formation et de son effondrement. Elle met en évidence le rôle du comportement grégaire, des pressions spéculatives dans la construction des prévisions de résultats, tout en interrogeant la fiabilité de la recherche financière en période d'euphorie boursière et de crash. En révélant ces dynamiques, l'étude contribue aux débats actuels sur l'efficience des marchés financiers, la responsabilité des analystes, et la nécessité d'améliorer les méthodologies de prévision dans les contextes marqués par une forte spéculation.

5.3 Quand la discipline institutionnelle fait la différence: l'impact conditionnel des IFRS sur les prévisions des analystes en Europe

L'article 3 s'inscrit dans la littérature académique examinant les effets des réformes comptables internationales sur le fonctionnement des marchés financiers. En se concentrant sur le comportement des analystes financiers à travers l'analyse de plus de 850 000 estimations de résultats, il propose une évaluation des impacts de l'adoption des normes IFRS (International Financial Reporting Standards) sur la précision et la dispersion des prévisions d'analystes en Europe. Sa contribution principale repose

sur une articulation originale entre analyse empirique à large échelle, modélisation économétrique innovante, et prise en compte des spécificités institutionnelles nationales.

La première contribution majeure de l'article réside dans l'ampleur de son corpus empirique. L'étude mobilise un échantillon exceptionnellement riche de plus de 850 000 estimations de résultats émises par les 100 principales maisons de courtage européennes sur une période de 30 ans (1993–2023), couvrant l'ensemble des sociétés cotées dans l'indice Stoxx Europe 600. Cette base de données exhaustive permet une analyse multi-échelle du comportement des analystes, en captant à la fois les tendances globales, les spécificités sectorielles, et les différences entre pays. L'originalité de cette base ne repose pas seulement sur sa taille, mais également sur sa granularité temporelle et institutionnelle. En effet, l'article distingue les prévisions par courtier, par trimestre, et par pays, tout en intégrant les spécificités structurelles des différents systèmes comptables et juridiques européens. Cette granularité autorise une lecture plus précise des dynamiques de prévision, et permet d'éviter les biais d'agrégation souvent reprochés aux études macro-financières. L'étude dépasse ainsi le simple constat d'un changement post-réforme pour analyser finement où, quand et pourquoi les effets de l'IFRS se manifestent.

Sur le plan méthodologique, l'article se distingue par l'utilisation d'un modèle économétrique peu mobilisé dans les études comptables : le difference-in-differences inversé (DiD in reverse). Cette approche, inspirée de Kim et Lee (2018), consiste à comparer les effets d'une réforme dont certains pays étaient déjà en situation de conformité avant son adoption officielle, alors que d'autres y sont passés progressivement. Contrairement au DiD classique, qui mesure l'effet après traitement pour les groupes traités, le DiD inversé permet de capturer les différences initiales et de suivre leur réduction au fil du temps. Ce changement de perspective est particulièrement pertinent dans le cas des IFRS, norme dont la nature est internationale mais dont l'application est très dépendante du contexte local. Grâce à cette approche, l'article parvient à isoler des effets différentiels entre trois groupes de pays, classés selon la classification de Byard, Li et Yu (2011) : (1) les pays déjà proches des IFRS et dotés d'un fort pouvoir de contrainte légale, (2) les pays avec un fort pouvoir de contrainte légale mais un fort écart initial aux IFRS, et (3) les pays avec un faible pouvoir de contrainte légale et un fort écart initial aux IFRS. Cette modélisation permet de tester non seulement l'existence d'un effet IFRS global, mais aussi les conditions spécifiques de son efficacité. L'article apporte ainsi une contribution précieuse à la littérature empirique, en démontrant que les analyses standards peuvent sous-estimer ou masquer les effets hétérogènes d'une réforme internationale.

Sur le plan théorique, l'article interroge directement l'hypothèse implicite de nombreuses politiques d'harmonisation comptable : celle selon laquelle l'uniformisation des normes améliore mécaniquement la qualité de l'information financière et donc l'efficience des marchés. Les résultats obtenus contredisent partiellement cette vision. En effet, l'étude révèle que l'adoption des IFRS a eu,

en moyenne, un effet négatif ou neutre sur la dispersion et la précision des prévisions dans l'ensemble de l'échantillon. Ce constat peut s'expliquer par les incertitudes initiales, la complexité des normes IFRS, ou encore l'hétérogénéité des pratiques d'interprétation et de mise en œuvre. Cependant, cette tendance globale masque une forte hétérogénéité contextuelle. Dans les pays classés comme « disciplinés » (fort pouvoir de contrainte légale et forte divergence initiale), l'introduction des IFRS a entraîné une réduction significative de la dispersion des prévisions et une amélioration de leur précision. En revanche, dans les pays « indisciplinés » (faible pouvoir de contrainte légale), les effets de la réforme sont faibles, voire inexistants. Ce résultat clé contribue à la littérature institutionnaliste, en confirmant que l'efficacité des normes comptables dépend largement de la capacité des systèmes nationaux à les faire appliquer. L'article dépasse ainsi la perspective purement normative pour adopter une vision conditionnelle et institutionnalisée de la régulation financière.

Une autre contribution importante de l'article est de repositionner les analystes financiers comme révélateurs indirects de la qualité des institutions nationales. Loin d'être des acteurs neutres, les analystes réagissent de manière différenciée aux normes selon le degré de transparence, de stabilité et d'applicabilité du cadre comptable et légal dans lequel ils opèrent. L'étude montre que les analystes installés dans des environnements réglementaires robustes s'adaptent mieux aux nouvelles normes, produisent des prévisions plus fiables, et bénéficient de conditions propices à une interprétation efficace des états financiers. En revanche, dans les contextes à pouvoir de contrainte légale faible, leur travail est entravé par des incertitudes réglementaires persistantes, des pratiques de contournement ou des asymétries d'information persistantes. En ce sens, l'article ne se limite pas à évaluer l'impact d'une norme, mais offre également une lecture plus large du rôle des analystes comme médiateurs institutionnels. Leur capacité à produire des prévisions de qualité devient un indicateur de la maturité des systèmes financiers nationaux et de l'efficacité réelle des réformes adoptées. Ce renversement de perspective ouvre la voie à une nouvelle façon de mobiliser les données sur les analystes pour évaluer l'état de santé réglementaire des marchés.

Au-delà de ses apports théoriques et empiriques, l'article présente plusieurs implications concrètes pour les décideurs publics, les régulateurs, et les investisseurs institutionnels. Il invite notamment à repenser l'approche « one size fits all » des réformes comptables internationales, en insistant sur la nécessité d'un accompagnement différencié selon les contextes nationaux. L'adoption des IFRS ne devrait pas se limiter à une transcription formelle dans les textes législatifs, mais s'accompagner d'une amélioration des capacités d'application, de contrôle et de sanction. Cela implique un renforcement des autorités de supervision comptable, des formations pour les auditeurs et analystes, et une coopération accrue entre régulateurs nationaux et organismes internationaux. Pour les investisseurs, l'article fournit également des éléments d'alerte sur l'interprétation des données comptables dans les pays à faible pouvoir de contrainte légale. La confiance excessive dans la standardisation apparente des chiffres peut masquer des écarts profonds de qualité de l'information. À cet égard, l'article appelle

à une lecture contextuelle des données financières, intégrant des indicateurs de gouvernance, de transparence, et de crédibilité institutionnelle dans les outils d'analyse.

En définitive, l'article 3 s'inscrit dans un double courant de la recherche : celui sur les analystes financiers comme producteurs d'information en contexte incertain, et celui sur l'impact des réformes réglementaires sur la qualité des marchés. Il relie ces deux champs par une démonstration empirique solide et innovante, qui démontre que l'efficacité des analystes n'est ni purement individuelle ni exclusivement liée aux normes, mais résulte de l'interaction entre institutions, outils comptables et dynamiques de marché. En synthétisant les dimensions macroéconomiques, réglementaires et comportementales, l'article contribue à la compréhension contemporaine des limites des réformes internationales en matière de reporting financier. Il invite à dépasser les visions simplistes d'une régulation efficiente par la norme seule, pour penser des modèles plus adaptés, ancrés dans les réalités institutionnelles et les capacités locales. C'est en cela que réside sa contribution la plus forte : non pas dans la défense ou la critique des IFRS en soi, mais dans la mise en lumière des conditions concrètes de leur succès.

6. Résumé de chacun des trois articles.

6.1 L'impact de la bulle Internet sur les recommandations des courtiers

L'article étudie l'impact de la bulle Internet sur la fiabilité et la qualité des recommandations des analystes financiers. Il examine dans quelle mesure les conditions de marché, propres à cette période spéculative, ont influencé la dispersion des recommandations émises par les courtiers, leur précision, ainsi que le classement des sociétés de courtage. En analysant plus d'un million de recommandations provenant des 100 principales sociétés de courtage, portant sur des entreprises de l'indice européen DJ Stoxx 600, l'étude propose une évaluation approfondie des effets de la bulle Internet sur le comportement des analystes financiers et sur leurs stratégies d'investissement.

La méthodologie utilisée dans cette recherche repose sur une analyse empirique des recommandations d'analystes financiers, à partir d'un ensemble de données comprenant 1 058 296 recommandations, émises entre le 31 décembre 1992 et le 31 décembre 2005, couvrant un large univers d'investissement de 1 323 entreprises cotées dans l'indice européen DJ Stoxx 600. L'étude s'appuie sur des données mensuelles extraites de la base FactSet, permettant une couverture représentative des recommandations des sociétés de courtage, les courtiers révisant en moyenne leurs recommandations une fois par mois. Les données portent sur les sociétés de courtage plutôt que sur les analystes pris individuellement, en raison de contraintes d'accès aux données, mais aussi parce que l'environnement organisationnel de la société de courtage influence de manière significative les performances des

analystes. Par conséquent, l'agrégation des données au niveau institutionnel constitue une approche pertinente et justifiée.

Pour évaluer l'impact de la bulle Internet sur les recommandations des analystes, l'étude définit la période de bulle à partir du ratio cours/bénéfice (PER) à long terme de l'indice STOXX Europe 600. Grâce à cette méthodologie, il est possible d'identifier les différentes phases de la bulle : la phase de formation débute en juillet 1996, le pic est atteint en mars 2000, et la bulle s'effondre ensuite jusqu'en mars 2003. Cette définition s'appuie sur des études antérieures qui ont tenté de dater la période spéculative à l'aide de modèles d'évaluation et de méthodes statistiques.

L'analyse de l'étude repose sur plusieurs modèles statistiques, incluant des approches linéaires et non linéaires, afin de tester différentes hypothèses. Elle examine si la dispersion des recommandations des analystes a augmenté pendant la période de la bulle, et si cette dispersion a eu un impact sur la performance des portefeuilles ainsi que sur le classement des sociétés de courtage. La qualité des recommandations est évaluée en construisant des portefeuilles théoriques fondés sur les recommandations d'achat, de vente et de conservation émises par les analystes. La performance des portefeuilles est mesurée à l'aide d'un indice de Laspeyres modifié, méthode largement utilisée en gestion d'actifs et dans la construction d'indices financiers. L'étude utilise également un indice de référence équipondéré afin de comparer les recommandations des courtiers aux tendances globales du marché.

L'un des indicateurs centraux analysés dans l'étude est la dispersion des recommandations, à la fois au niveau des titres individuels et au niveau des sociétés de courtage. Au niveau des actions, l'étude calcule l'écart-type des recommandations afin de mesurer le degré de divergence entre les opinions des analystes sur un titre donné. Au niveau des sociétés de courtage, la dispersion des performances est évaluée en analysant les écarts de performance entre les portefeuilles recommandés par différents courtiers. Cette double approche permet de mieux comprendre la variabilité des opinions et des résultats en période de forte instabilité des marchés.

Les résultats révèlent des variations significatives dans le comportement des analystes au cours de la bulle Internet. La dispersion des recommandations était particulièrement élevée pendant la phase de formation de la bulle, ce qui indique que les courtiers avaient des opinions divergentes sur l'évolution du marché. En revanche, lors de l'effondrement de la bulle, les analystes ont semblé converger dans leurs évaluations, adoptant une réaction plus uniforme face à la baisse du marché. L'étude confirme que cette augmentation de la dispersion n'était pas simplement un effet saisonnier, mais bien une caractéristique propre aux conditions spéculatives du marché durant cette période.

La dispersion des performances des portefeuilles a également connu d'importantes fluctuations. L'écart entre les portefeuilles les plus performants et les moins performants s'est considérablement

élargi durant la montée puis l'éclatement de la bulle, ce qui suggère que la capacité des courtiers à formuler des recommandations boursières précises variait davantage dans des conditions de marché extrêmes. Ce constat indique que les analystes ont eu des difficultés à évaluer correctement la valeur réelle des actions pendant les périodes spéculatives, ce qui a conduit à des conseils d'investissement incohérents.

L'analyse des classements des sociétés de courtage fondés sur la performance de leurs portefeuilles « achat » met en évidence une forte instabilité des classements durant la période de bulle. L'étude révèle qu'il était particulièrement difficile pour les courtiers de conserver une position de tête en période de turbulences sur les marchés. À l'inverse, certaines sociétés historiquement moins bien classées sont parvenues à remonter dans le classement à des moments clés de la bulle, notamment à son apogée et lors de son éclatement. Ces résultats suggèrent que la stabilité des classements est fortement perturbée en période spéculative, ce qui rend difficile pour les investisseurs de s'appuyer sur les performances passées des courtiers comme indicateur fiable.

Les conclusions de l'étude présentent des implications importantes pour les investisseurs et les autorités réglementaires. Elle démontre que les recommandations des analystes financiers sont moins fiables en période de bulle, et que les conditions de marché influencent fortement la perception de la qualité des sociétés de courtage. Les résultats suggèrent que les investisseurs doivent faire preuve de prudence vis-à-vis des recommandations émises par les courtiers, en particulier dans les environnements spéculatifs. Par ailleurs, l'étude souligne la nécessité de développer des méthodologies d'évaluation plus robustes pour mesurer la performance des analystes, notamment dans des contextes de forte volatilité.

Bien que l'étude apporte des enseignements précieux sur le comportement des analystes financiers pendant la bulle Internet, on peut lui reconnaitre certaines limites. Le fait de se concentrer sur une période historique spécifique et un marché géographique particulier peut restreindre la portée généralisable des résultats à d'autres épisodes de bulles financières. En outre, l'analyse repose sur des données historiques, qui ne permettent pas de saisir pleinement l'évolution des conditions de marché ni les changements de comportement des analystes au fil du temps. Des recherches futures pourraient élargir ce cadre d'analyse en étudiant des dynamiques similaires dans d'autres marchés, ou en explorant le rôle des nouveaux outils financiers dans l'atténuation des effets des bulles spéculatives.

Dans l'ensemble, cette étude apporte une contribution significative à la littérature en proposant une analyse approfondie de l'impact de la bulle Internet sur les recommandations des analystes financiers. Elle démontre que la dispersion des recommandations, la dispersion des performances et les classements des sociétés de courtage ont été fortement influencés par les conditions de marché, mettant en lumière les difficultés rencontrées par les analystes pour fournir des conseils d'investissement fiables en période spéculative. Ces résultats soulignent l'importance des facteurs

contextuels dans l'évaluation de la performance des analystes financiers et invitent à adopter une approche prudente dans l'interprétation des recommandations des courtiers, en particulier lors des phases d'exubérance financière.

6.2 Comment repérer le sommet de la bulle Internet : les enseignements du comportement des analystes sell-side à travers leurs prévisions de résultats

L'étude examine l'influence de la bulle Internet du début des années 2000 sur les prévisions de résultats émises par les analystes sell-side, dans le contexte du marché européen. Les analystes jouent un rôle essentiel dans la formation des anticipations de marché à travers leurs prévisions de bénéfices. L'article se concentre sur les entreprises composant l'indice Europe STOXX 600, sur une période allant de 1994 à 2005. Un des éléments clés de cette étude est l'utilisation d'un jeu de données unique et volumineux, composé de 29 786 prévisions de consensus, issues des cent principales sociétés de courtage. En analysant de manière systématique le comportement prévisionnel des analystes avant, pendant et après la bulle, l'étude apporte un éclairage sur la manière dont les experts financiers ont réagi face à une dynamique spéculative, et sur l'évolution de la nature de leurs prévisions au fil du temps.

La méthodologie de recherche adopte une approche empirique pour examiner la manière dont les analystes des sociétés de courtage ont ajusté leurs prévisions au cours de la bulle Internet. L'étude mobilise deux variables principales pour analyser les comportements prévisionnels : la dispersion des estimations et la révision des prévisions. Ces deux variables permettent de saisir des dimensions différentes du comportement des analystes. La dispersion des estimations mesure l'écart entre les prévisions émises par différents analystes, indiquant ainsi le degré de consensus ou de désaccord au sein de la communauté professionnelle. La révision des prévisions évalue la manière dont les analystes ajustent leurs estimations de résultats dans le temps, fournissant un indicateur de leur capacité d'adaptation et de précision.

L'étude utilise des modèles de régression afin d'examiner l'influence de plusieurs facteurs sur la dispersion et les révisions des prévisions des analystes. L'approche méthodologique principale repose sur une analyse de régression avec effets d'interaction, ce qui permet d'identifier les effets conditionnels de certaines variables sur le comportement des analystes. Les variables explicatives prises en compte dans le modèle sont : le secteur d'activité, l'année d'émission de la prévision, ainsi que le décalage temporel (avant ou après la clôture de l'exercice fiscal).

Les résultats empiriques sont obtenus en appliquant des modèles d'interaction afin d'évaluer comment ces facteurs influencent conjointement la dispersion des prévisions et les révisions effectuées par les analystes. Divers termes d'interaction sont testés afin d'analyser l'évolution du comportement prévisionnel dans le temps et selon différentes conditions de marché. L'étude présente plusieurs

tableaux de régression qui examinent les effets marginaux et conditionnels des influences sectorielles et temporelles, mettant en évidence les dynamiques complexes qui sous-tendent la production de prévisions financières en contexte spéculatif.

La méthodologie intègre également des tests de significativité statistique, avec la présentation des t-statistiques et des p-valeurs pour chaque coefficient estimé. Les niveaux de significativité sont classés par seuils de 1 %, 5 % et 10 %, ce qui permet de distinguer les relations statistiquement pertinentes des fluctuations aléatoires. Les valeurs du R^2 indiquent la proportion de la variance dans la dispersion ou les révisions expliquée par le modèle, renforçant ainsi la robustesse des résultats. L'ensemble de ces techniques permet de mener une analyse approfondie du comportement prévisionnel des analystes au cours de la période de la bulle Internet.

Le jeu de données utilisé dans l'étude constitue l'un de ses principaux atouts méthodologiques. Composé de près de 30 000 prévisions de consensus issues d'un large éventail de sociétés de courtage, ce corpus offre une vue détaillée et granulaire de l'évolution des anticipations de résultats au fil du temps. Les prévisions portent sur des entreprises incluses dans l'indice STOXX 600, garantissant une représentation étendue du marché européen. La période couverte s'étend de 1994 à 2005, ce qui est essentiel pour comprendre les dynamiques propres à la bulle Internet. Ce cadre temporel permet d'analyser la phase de formation de la bulle, son apogée spéculatif, ainsi que les ajustements de marché survenus par la suite.

Le jeu de données est structuré de manière à permettre une analyse approfondie du comportement prévisionnel des analystes. Il comprend des informations détaillées telles que les dates d'émission des prévisions, la société de courtage à l'origine de la prévision, l'entreprise analysée, ainsi que les estimations du bénéfice par action (BPA) formulées par les analystes. En agrégeant des données issues de sources multiples, l'étude garantit une représentation diversifiée des pratiques de prévision entre différentes institutions. De plus, ce jeu de données permet d'examiner comment les analystes de différentes sociétés de courtage ont réagi à l'évolution des conditions de marché, offrant ainsi une lecture nuancée des comportements prévisionnels en période de spéculation financière.

La contribution de l'étude est significative, bien qu'elle ne soit évoquée ici que brièvement, ayant déjà été développée dans une autre section. Les résultats mettent en évidence des changements marqués dans le comportement prévisionnel des analystes durant la montée puis l'éclatement de la bulle Internet. Plus précisément, au cours de la phase d'expansion, les prévisions tendaient à converger, entraînant une réduction de la dispersion entre les estimations des analystes. En revanche, lorsque la bulle a éclaté, on observe une divergence nette des prévisions, traduisant une incertitude accrue et des interprétations divergentes des conditions de marché. L'étude met également en évidence la présence de biais dans les prévisions, notamment un excès d'optimisme durant la phase haussière, ainsi qu'un

retard dans la prise de conscience de la gravité de la correction. Ces éléments enrichissent la compréhension des mécanismes de marché et du rôle des analystes financiers en contexte spéculatif.

Dans l'ensemble, l'étude propose une analyse détaillée et méthodologiquement rigoureuse de la manière dont les analystes sell-side ont ajusté leurs prévisions de résultats en réponse à l'une des bulles spéculatives les plus marquantes de l'histoire récente. En mobilisant des modèles économétriques avancés et un large jeu de données européen, la recherche apporte un éclairage pertinent sur le comportement prévisionnel des analystes en période d'instabilité des marchés.

6.3 Quand la discipline institutionnelle fait la différence: l'impact conditionnel des IFRS sur les prévisions des analystes en Europe

L'article 3 analyse l'effet de l'adoption des normes IFRS sur la qualité des prévisions d'analystes financiers en Europe, en mobilisant un corpus de données exceptionnellement riche issu de la base FactSet. Il s'intéresse à deux dimensions clés des prévisions : leur précision et leur dispersion, en examinant si et dans quelles conditions l'introduction d'un référentiel comptable international contribue à améliorer l'environnement informationnel des marchés. L'étude repose sur un échantillon de plus de 850 000 estimations de résultats, couvrant 1323 entreprises composant le DJ Stoxx 600 entre 1993 et 2023, émanant des 100 maisons de courtage les plus actives sur cet univers. L'originalité de l'article réside dans sa volonté d'analyser les effets de la réforme en tenant compte de l'hétérogénéité institutionnelle des pays concernés, en particulier en matière de qualité de l'application juridique des normes comptables.

L'adoption des IFRS constitue l'une des réformes les plus importantes du paysage comptable mondial. Plusieurs études antérieures ont montré que cette réforme a permis d'améliorer la comparabilité des états financiers, de réduire les asymétries d'information et de renforcer l'attractivité des marchés pour les investisseurs. Toutefois, ces résultats sont souvent nuancés par des travaux qui insistent sur le rôle modérateur des institutions locales. Le présent article se positionne dans ce débat en testant empiriquement si les analystes financiers, acteurs clés du traitement et de la diffusion de l'information, bénéficient réellement de l'adoption des IFRS dans la production de leurs estimations.

Le cadre conceptuel s'appuie principalement sur la théorie institutionnaliste. L'idée centrale est que les normes comptables, aussi sophistiquées soient-elles, ne produisent pas d'effets homogènes si elles ne sont pas accompagnées de mécanismes d'application efficaces. Dans ce contexte, l'article distingue trois groupes de pays selon la classification de Byard, Li et Yu (2011) : (1) les pays où les normes locales étaient déjà proches des IFRS et où l'application juridique est forte (ex. Royaume-Uni, Irlande, Suède), appelés « IFRS countries » ; (2) les pays avec une forte application juridique mais une grande distance initiale aux IFRS (« Disciplined countries », ex. Allemagne, Suisse, Finlande) ; et (3) les pays avec une faible application juridique et une forte divergence initiale (« Undisciplined countries », ex.

France, Italie, Espagne, Grèce). Cette segmentation permet d'évaluer si les effets de la réforme dépendent du contexte local.

La méthodologie adoptée repose sur plusieurs modèles économétriques, dont un difference-in-differences inversé (DiD in reverse). Contrairement au DiD classique qui compare un groupe traité et un groupe non traité avant et après une réforme, le DiD inversé part d'un groupe déjà conforme (les IFRS countries) et observe comment la réforme affecte les pays non alignés (disciplined et undisciplined) après leur mise en conformité. Ce choix méthodologique est particulièrement pertinent dans le cas d'une réforme progressive et multinationale comme les IFRS, où les niveaux de préparation institutionnelle varient d'un pays à l'autre. Les variables d'intérêt sont la dispersion (écart type des estimations d'un même résultat entre différents courtiers) et l'erreur de prévision (écart entre une estimation et celle donnée 3 mois après la fin de l'exercice fiscal).

Les résultats globaux montrent que, de manière paradoxale, l'adoption des IFRS est associée à une augmentation moyenne de la dispersion et de l'erreur des prévisions. Cela suggère que, contrairement aux attentes initiales, la réforme n'a pas systématiquement amélioré la qualité de l'information financière disponible pour les analystes. Ce résultat contre-intuitif peut s'expliquer par plusieurs facteurs. D'abord, la période de transition vers les IFRS a pu générer une incertitude accrue, avec des états financiers plus complexes et des règles nouvelles difficilement interprétables par les analystes. Ensuite, la mise en œuvre hétérogène des normes, en fonction des traditions comptables locales, a pu accentuer les divergences dans les méthodes de lecture des états financiers.

Cependant, une analyse plus fine montre que cette tendance générale masque des effets très contrastés selon le groupe de pays. Dans les « disciplined countries », l'adoption des IFRS s'accompagne d'une baisse significative de la dispersion et de l'erreur des prévisions. En d'autres termes, dans les pays où les institutions sont capables de faire respecter efficacement les normes comptables, la réforme améliore bien la qualité des prévisions des analystes. À l'inverse, dans les « undisciplined countries », l'effet est faible voire inexistant. Ces résultats confirment l'hypothèse institutionnaliste : une norme globale ne peut produire des effets homogènes si elle n'est pas appuyée par un environnement réglementaire solide.

L'article propose aussi une lecture dynamique de ces effets. Les modèles intègrent des effets fixes par année pour tenir compte des grandes crises économiques (bulle Internet, crise des subprimes, crise COVID). Ces ajustements montrent que la précision et la dispersion des prévisions sont fortement affectées par les contextes macroéconomiques, ce qui plaide pour une lecture prudente des effets réglementaires. De plus, des analyses complémentaires montrent que l'impact des IFRS varie aussi selon la temporalité de la prévision (horizon plus ou moins proche de la publication des résultats) et selon les secteurs économiques, certains étant plus sensibles à la complexité comptable (ex. secteurs à forte intensité R&D).

Les implications de ces résultats sont multiples. Du point de vue théorique, l'article apporte une confirmation empirique au débat sur l'efficacité conditionnelle des réformes globales. Il illustre que l'adoption d'un standard international ne suffit pas en soi à améliorer l'environnement informationnel des marchés financiers. La qualité de l'environnement institutionnel, et notamment le niveau d'application juridique des normes, conditionne directement l'efficacité de la réforme. Cette conclusion invite à relativiser les ambitions d'harmonisation comptable internationale portées par des organismes comme l'IASB, et à promouvoir une approche plus contextualisée des politiques comptables.

Sur le plan empirique, l'article propose un cadre d'analyse transférable à d'autres réformes réglementaires. Sa méthodologie peut être appliquée à l'étude d'autres normes internationales (ex. Bâle III, Solvabilité II) pour évaluer l'hétérogénéité des effets selon les pays. En mobilisant une base de données très large, couvrant un grand nombre d'analystes, de sociétés et de pays, l'article fournit une démonstration robuste de l'importance des facteurs institutionnels dans l'évaluation des réformes. Il ouvre aussi la voie à des recherches futures sur la façon dont les analystes s'approprient les changements de normes, et sur les dispositifs de formation ou d'accompagnement nécessaires pour améliorer cette appropriation.

L'étude a également une portée pratique importante. Pour les régulateurs, elle souligne l'importance d'associer à toute réforme comptable un travail sur l'amélioration des mécanismes de contrôle et de sanction. Le simple alignement textuel sur les normes IFRS ne suffit pas si les institutions chargées de leur application sont faibles ou passives. Pour les acteurs de marché, l'article appelle à une lecture prudente des données financières issues des pays à faible pouvoir de contrainte légale, même si elles sont présentées selon les normes IFRS. Cela implique une vigilance accrue sur la qualité des audits, la gouvernance des entreprises et la transparence effective de l'information publiée.

Une autre contribution importante de l'article est de repositionner les analystes comme acteurs sensibles au contexte institutionnel. Leur capacité à produire des prévisions de qualité ne dépend pas uniquement de leur compétence individuelle ou de la quantité d'information disponible, mais aussi de la manière dont cette information est produite, structurée et encadrée par la régulation. Les analystes ne sont donc pas des agents neutres, mais des « capteurs institutionnels », dont la performance reflète aussi les failles ou les forces du système dans lequel ils opèrent. Ce constat ouvre des perspectives de recherche sur l'analyse des analystes comme indicateurs indirects de la santé réglementaire d'un marché financier.

Enfin, l'article enrichit la compréhension du rôle ambivalent des normes IFRS. Présentées comme un levier d'harmonisation et de transparence, elles peuvent aussi produire l'effet inverse si elles ne sont pas accompagnées d'un encadrement suffisant. Par leur complexité, leur caractère parfois trop généraliste, et les marges de manœuvre qu'elles laissent aux entreprises dans certaines estimations (ex.

instruments financiers, valorisation d'actifs), les IFRS peuvent déstabiliser les analystes en rendant les états financiers plus difficiles à interpréter. C'est notamment le cas dans les premières années suivant leur adoption, où les ajustements sont nombreux et les référentiels internes des entreprises encore en construction. Cette difficulté d'appropriation est amplifiée dans les contextes où les mécanismes de surveillance et de clarification sont faibles, ce qui peut expliquer l'absence d'effet positif dans les pays dits « indisciplinés ».

En conclusion, l'article 3 apporte une contribution théorique, empirique et méthodologique à la compréhension des effets des réformes comptables internationales. Il montre que les analystes financiers, loin d'être de simples récepteurs d'information, sont fortement influencés par le cadre institutionnel dans lequel ils évoluent. Il démontre que la réussite des réformes ne peut être assurée sans une capacité réelle d'application locale. À travers une analyse rigoureuse, couvrant trente ans de données et mobilisant des outils économétriques avancés, l'article éclaire les conditions de réussite, mais aussi d'échec, de l'harmonisation comptable internationale, et souligne l'importance de penser la régulation comme un processus intégré, combinant normes, force exécutoire, et accompagnement institutionnel.

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ARTICLE 1 : The impact of the internet bubble on broker recommendations

The impact of the internet bubble on broker recommendations

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The impact of the internet bubble on broker recommendations

Abstract: The unusual market conditions of the dot-com bubble may affect the quality of the financial analysts' evaluations and their relevance for investors. Based on a sample of more than 1 million recommendations issued by the top 100 brokerage houses on 1,323 companies listed in the European DJ Stoxx 600 from 31/12/1992 to 31/12/2005, we measure, using new metrics, the dispersion of brokers recommendation, their quality, and the ranking changes of broker houses. The results shows that the dispersion and the quality of the recommendations is greatly affected and that the reliability of the reputation of broker houses is heckled. It leads us to conclude that analysts' recommendations should be used cautiously during troubled times.

Keywords: Broker, Bubble**,** Financial Analyst, Portfolio management, Ranking, Recommendation, Sell-side

We gratefully acknowledge the contribution of *Factset Inc*. for providing recommendation data, available through the *Factset* Workstation System. This data has been provided as part of a broad academic program to encourage earnings expectations research.

Introduction

Financial analysts' recommendations play a very important role on equity markets. They are an essential link between savers and companies. To help potential investors in their choices, financial analysts provide continuous work to assess the economic health of listed companies. Sell-side analysts have the role of disseminating the results of their work to a wide audience. They publish two main pieces of information: earnings forecasts, namely earnings per share (EPS), and recommendations (buy, sell, neutral). Financial analysts are information providers that are then used by fund managers and investors for their portfolio choices (Ranmath *et al.*, 2008).

The role and behavior of financial analysts have been extensively analyzed in the literature. As indicated by Brauer *et al.* (2018), there are two competing perspectives as to the role and influence of financial analysts. First a monitoring function perspective (Womack, 1996) where financial analysts are rational actors who provide an independent evaluation based on their expertise. Second, a more balanced perspective where the financial analysts behavior and forecast accuracy is influenced by various bias and contextual constraints such as herding behavior (Trueman, 1994 ; Jegadeesh, 2010), overoptimism (Lim, 2001, Sedor, 2002), career and incentive concerns (Hong and Kubik, 2003), financial analysts heuristics (Bradshaw, 2004; Machado and Lima, 2021), financial analysts profile (experience, type of broker firms, …, Clement, 1999; Hong *et al.*, 2000), conflicts of interests (Lin and McNichols, 1998 ; Michaely and Womack, 1999 ; Cowen *et al.*, 2006), the degree of enforcement of accounting standards (Hope, 2003), economic uncertainty (Loh and Stulz, 2018; Chen *et al.*, 2022) and firm characteristics such as size and coverage (number of analysts following the firm) (Dowen, 2009).

This article explores the influence of stock market bubbles on financial analyst recommendations, a time when biases and contextual constraints such as overoptimism and herding can be exacerbated at the expense of the quality and accuracy of forecasting and the rationality of recommendations. For instance, Guedj and Bouchaud (2005) show that overoptimism and herding behavior were particularly strong during the internet bubble. This article analyzes the effect of bubbles formation and burst on analysts' recommendations at the level of brokers houses. We are seeking to understand how portfolio performance based on recommendations and broker rankings is affected by the unusual market conditions of the dot-com bubble. Based on a sample of more than 1 million recommendations issued by the top 100 brokerage houses on 1,323 companies listed in the European DJ Stoxx 600 from 31/12/1992 to 31/12/2005 (145 months), we examine the underlying factors that are affected by the dot-com bubble, including the dispersion of brokers recommendation, their quality and the ranking of broker houses from that point of view. By analyzing these key indicators, we identify the effects of a bubble before and when it bursts. We show that recommendation dispersion is higher before and during the rise of the dot-com bubble, then falls during bubble collapse. The brokers portfolio

performances (based on their recommendations) show a much higher dispersion during rise and collapse of the dot-com bubble, than in normal times (before and after the bubble). The rate of portfolio overperforming the European market benchmark is below 50% before and during the bubble rise and collapse, and only improves (rises above 50%) after the bubble. Eventually, we show that the ranking of the brokers sorted by quartile is hugely affected by the bubble at pivot period, making it especially hard to stay in the best quartile at the top of the bubble, and offering opportunities for the brokers of the worst quartile to jump directly in the best quartile.

Brokers recommendations are crucial information for making an investment decision, so it is important to measure how much analysts diverge from each other, at a company level, and how good their recommendations are for portfolio management purposes. Our results may be helpful for investors to make more informed and successful decisions when using brokers recommendations. Our article focuses on the dot-com period and shows that the quality of the recommendations is very much affected. This information should then be used more cautiously during these shaky times.

The remainder of this paper is organized as follows. Section 2 reviews the main theoretical ideas and existing literature. Section 3 details the sample, data, and empirical methods. Section 4 presents and discuss the empirical results. Finally, Section 5 concludes the study.

1. Literature review and hypothesis development

1.1. Bubbles and financial analysts' role and behavior

A financial bubble is essentially a price phenomenon. Bhattacharya and Yu (2008) state that there would never be agreement on the existence or absence of bubble ex ante. They believe, however, that more agreement could be reached about the existence or nonexistence of a bubble ex post. Ofek and Richardson (2003) look at a reasonable upper bound of the fundamental value. From a macro economical point of view, Quinn and Turner (2020) show that a financial bubble can be described as a conjunction of three factors described as the "fire triangle" by some historians: marketability, money and credit, and speculation. The bubble triangle, as well as explaining why bubbles begin, can help us understand why they end. Basco (2016) analyses two historical major US bubbles: the dot-com and the subprime. He distinguishes outside bubbles, which he defines as savers purchasing and selling costless assets not-attached to inputs of production (dot-com bubble) and inside bubbles, which he defines as savers buying an input of production (subprime) only as a store of value. Griffin *et al.* (2011) and Chan (2014) contrast the behavior of institutional investors with that of individual investors. The former being called "rational" and the latter "irrational", hence being responsible for the formation of the financial bubble.

Financial analysts have an important role to play in avoiding the formation of bubbles, as they are supposed to produce information that should not allow the bubble to exist in the first place, providing investors with rational and accurate forecasts. Besides, Loh and Stulz (2018) observe that in bad times (crisis), financial analysts' work is more valuable, analysts working harder and investors relying more on them. In a laboratory experiment, Giamattei *et al.* (2020) show that paying for price target accuracy reduces attention away from the fundamental value towards trading activity and generates major and persistent mispricing as well as trend extrapolation. Bradley *et al.* (2008) observe that despite being accused of biased and misleading recommendations made during the dot-com bubble years by IPO affiliated analysts, there is no evidence that their recommendations were more taken into account by investors than non-affiliated analysts. Andrade *et al.* (2013) also show that the greater the number of analysts covering a stock and the more agreeing with each other, the smaller the size of the valuation bubble.

However, Guedj and Bouchaud (2005) report that financial analysts were over-optimistic and show a pronounced herding behavior during the internet bubble. In the UK, Forbes *et al.* (2020), observe that during the internet bubble, analyst recommendations were valuable at firm level in the technology, telecommunication and media industry but not at the aggregate level. Liu and Song (2001) also conclude that financial analysts were too optimistic about the Internet stocks before the market crash in April 2000. Xue and Xu (2021) show that goodwill increases the optimism and reduces the accuracy of analysts' earnings forecasts. From this point of view, earning forecast bias would be a consequence of bubble formation. Farooq (2013) find another source of bias during the 97/98 Asian bubble, the foreign analysts' recommendations were better than the local ones.

Some research focus on the impact of the bubbles on the valuation process itself. Morris and Alam (2012) document a decline in the relation between market value and traditional accounting information leading up to the bubble period. However, after the collapse of the bubble in 2000 this trend reverses. Glaum and Friedrich (2006) consider whether analysts' approaches have changed since the dot-com bubble. They find that today they rely much more on the discounted cash flow analysis method than at the end of the 1990s, when valuation was largely based on multiples. From revenue-oriented measure, analysts have turned to an assessment of profitability and cash flow generation. In addition, analysts say they have become more diligent and more critical in their analysis.

1.2. Hypothesis development

The specific market conditions of the dot-com bubble (or another bubble) are a unique time to evaluate the behavior of financial analysts because the biases identified in the literature, such as herding, overoptimism or conflict of interests, are all the more likely to materialize at the expense of the rationality that should be the basis of their methods of work and their recommendations (Womack 1996) and consequently at the expense of quality and accuracy of their forecasting and

recommendations. It leads us to formulate four hypotheses regarding financial analysts' behavior at the broker level.

Hypothesis 1: Brokers recommendations dispersion is amplified by the dot-com bubble increase and collapse

Janunts (2010) explores the relationship between analyst disagreement and stock returns, using the standard deviation of recommendations as a proxy for analyst disagreement. This measure is advantageous because it is not influenced by fiscal year-end proximity or the need for normalization across firms, contrary to earnings estimates. The analysis covers the period from January 1994 to December 2007 and includes 867,549 summary statistics of recommendations for U.S. firms with at least two analysts issuing recommendations. The results indicate that there is no apparent connection between the standard deviation of recommendations and future stock returns, in contrast to the relationship observed between dispersion of earnings forecasts and stock returns. Due to the unusual characteristics of the bubble period, we expect an increase in dispersion.

Hypothesis 2: Brokers recommendation performance dispersion is higher during the dot-com bubble increase and collapse

For the same reasons as hypothesis 1, since the dispersion of the recommendations should be higher during the bubble point-com, we can expect brokers' performance based on their recommendations to also be more dispersed during this period. Previous research on this topic shows opposite results. Kucheev and Sorensson (2019) reveal that optimism cycles are related to the calendar of companies' earnings announcements rather than market-specific effects. Based on these findings, we expect to observe seasonal patterns in analysts' target prices and recommendations and no impact of the dot-com bubble. Jiang and Kim (2014) show that the analysts' tendency to issue recommendation revisions and market reactions to revisions are strongly related to jumps in stock prices. Since recommendation revisions are more likely to be clustered around stock price jumps, we expect to observe more recommendation dispersion during the dot-com bubble.

Hypothesis 3: Brokers recommendations' quality measured by portfolio performance is affected by the dot-com bubble

The quality of recommendations can be measured by portfolio performance. Bradshaw (2004) shows that buy-and-hold investors would earn higher returns based on present value models that incorporate analysts' earnings forecasts than on analysts' recommendations. In his case, the portfolio performance is built by taking the mean consensus recommendations for each stock each month and creating quintile of recommendation to create five portfolios. The results also highlight that consensus recommendations are generally not associated with one-year-ahead returns. Most studies documenting a correlation between recommendations and future returns use individual recommendation revisions

(e.g., Bjerring *et al.*, 1983; Stickel, 1995; Womack, 1996), and the periods of cumulative returns are short (e.g., 1–3 months).

In the UK, Forbes et al. (2020), observe that during the internet bubble, analyst recommendations were valuable at firm level in the technology, telecommunication, and media industry but not at the aggregate level. They calculate the cumulative abnormal returns (CARs) and showed that in the two bubble periods (dot-com and subprime), analysts' advice (whether by the way of their stock recommendations or earnings forecasts) has no significant effect on monthly returns at the aggregate level.

Merli *et al.* (2021), present an original analysis of financial advice offered by an analyst before World War I: A. Neymarck, a prominent French analyst from the early 20th Century. By constructing portfolios using a database containing monthly returns for all security types listed on the official Paris Stock Exchange between 1903 and 1912, they demonstrate that Neymarck accurately assessed risk in several sectors. These portfolios, following Neymarck's recommendations, confirm his expertise in terms of both risk and return. Additionally, utilizing Modern Portfolio Theory helps identify a few minor shortcomings in Neymarck's advice, but overall, his guidance appears to be grounded in reliable financial analysis. This study tells us that in a normal (bubble-free) environment an analyst's portfolio may perform better than the benchmark.

These nuanced results lead us to hypothesize the impact of the unusual characteristics of the bubble on the quality of broker recommendations measured by portfolio performance.

Hypothesis 4: The dot-com bubble distorts the ranking of broker firms based on their recommendation portfolio performance

Desai *et al.* (2000) conduct an examination of the stock recommendations provided by all-star analysts from the *Wall Street Journal* (WSJ). Their findings reveal that stocks endorsed by these esteemed analysts outperform benchmarks when accounting for size and industry factors. Furthermore, stocks recommended by analysts specializing in a specific industry tend to outperform those with broader industry coverage. In addition, they observe a tendency among analysts within the same industry to exhibit herding behavior. Emery and Li (2009) observe that WSJ and *Institutional Investor* (I/I) rankings have no significant investment value both in terms of recommendations and earnings forecast accuracy. The rankings are considered to be "popularity contests" and create significant barriers to entry. Kucheev *et al.* (2017) find that analyst ranking matters in making robust investment decisions, but only for *Buy* and *Strong Buy* recommendations based on 4 rankings (WSJ, I/I, and two *Starmine*'s). Vukovic *et al.* (2024) show that analysts with star rankings (*Starmine*) have the ability to generate superior performance.

Bagnoli *et al.* (2008), study the turnover of the three first (p296) financial analysts ranked every year by WSJ and I/I. They find that turnover of the ranking increased at the top of the dot-com bubble formation (2000-2001) in the US and in the rest of the world (Europe, Asia, Latam). Sidhu and Tan (2011) analyzed a sample of analysts over the subprime bubble formation and collapse (vs. dot-com bubble in our case) for Australian and US listed equities. They show that the most accurate analysts in the pre-crisis period continue to be significantly more accurate during the crisis period than their peers.

To date, the link between financial analysts' ranking and performance is still unclear and seems to be even less effective during a bubble period. This leads us to pose the hypothesis of a distortion of the rankings in bubble period.

2. Methodology

2.1. Sample

The sample contains a panel of analyst recommendations from December 1993 to September 2005 obtained from *FactSet*. The sample includes analysts' recommendations on the firm composing the STOXX 600 index. We have used all the stocks that went in and out of the composition of the DJ Stoxx 600 since the end of 1992 – giving us an investment universe of 1,323 stocks – to assess theoretical portfolio performance based on broker recommendations.

We compute statistics at broker house level because we did not have access to analyst level data. Nevertheless, literature (Do and Zhang, 2020; Groysberg *et al.*, 2008; Huang *et al.*,2022), shows that the broker house environment has a huge impact on analysts' performance. Therefore, it makes sense to compute statistics at broker level rather than analyst.

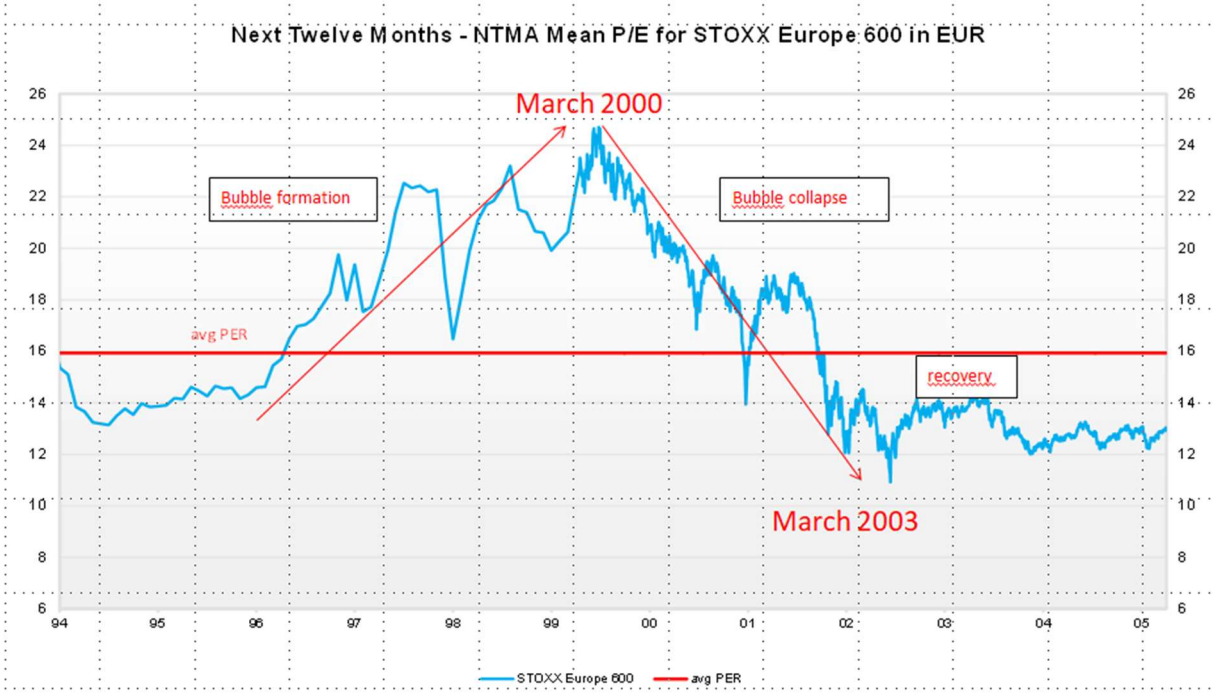
We concentrate on analyst reports issued by the top 100 brokerage houses (out of 230 in the Factset database in 2005) in terms of research output[1]. The total number of recommendations (strong buy, buy, neutral, sell, strong sell) in our sample amounts to 1 058 296, from 31/12/1993 to 31/12/2005 on a monthly basis.

There is still a debate on the chronology of the internet bubble. Phillips and Shi (2018) date the recovery in April 2004. Alternatively, a time varying auto regressive model developed by Leone and Ribeiro de Medeiros (2015) on the Price/dividend ratio of the NASDAQ index, shows that the dot-com bubble lasted only from December 1998 until July 2001. Also, Horváth *et al.* (2022) date the dot-com period on the CAC 40 from 1997 to 2000 thanks to a nonparametric change-point method for bubble testing. They found the same date for the NASDAQ with a 6-month precision as Phillips *et al.* (2011).

We chose to identify the dot-com bubble, by looking at long term Price to earnings ratio for the STOXX Europe 600 index given by *Factset* database. From a pure valuation point of view the dot-com bubble can be defined by comparison to the average PER of the STOXX Europe 600 index of 16x over the 31/12/1993-31/12/2005 period. On Figure 1, we can clearly see the formation of the bubble starting in July 1996, peaking in March 2000 and collapsing until March 2003.

[1] The code source to get data from *Factset* is available on demand.

Figure 1 - STOXX Europe 600 index PER history



2.2. Variables

Recommendation quality

There are various methods and options to measure recommendation quality that can be identified in previous research such as correlation between recommendation and valuation (e.g. Bradshaw, 2009; Guo *et al*., 2020), recommendation revisions – upgrade and downgrade (e.g. Balashov, 2018; Chen *et al.,* 2022), derivation from consensus as measure for optimism (e.g. Krolikowski *et al.*, 2016), and single stock performance (e.g. Farooq, 2013).

Recommendation quality is also measured by portfolio average overperformance compared to the average index performance over a fixed period of time that can vary from 20 to 250 days. For instance, Bessler and Stanzel (2009) measure aggregated stock performance with two timeframes: short term (30 days, 10 days before and 20 days after) with a CAR performance and long term (123 or 246 days) with a BHAR performance measure. Both measures are relative to the market index (NEMAX here) the difference is that relative performances are aggregated arithmetically for CAR and geometrically for BHAR. Loh and Stulz (2018) measure an even shorter term CAR: 2 days only. They don't compute a portfolio performance, but an average of the 2 days CAR. The problem with this fixed time frame is that the broker can change his recommendation over that time, or, on the contrary maintain it longer. The CAR and BHAR hence do not reflect the exact performance of a broker.

To avoid such issues, we implemented a performance calculus that is used for portfolio performance measure in the asset management industry and the index providing company. The formula is created by a modification of a Laspeyres index, as explained in the S&P Dow Jones Index Mathematic Methodology[2].

First, the portfolio performance is measured as follows:

$$\boldsymbol{Portfolio\ performance}(\boldsymbol{m}) = \frac{\boldsymbol{1}}{\boldsymbol{n}} \sum_{\boldsymbol{i=1\ to\ n}} \boldsymbol{reco_i}(\boldsymbol{m}) * \boldsymbol{perf_i}(\boldsymbol{m})$$

Where:

Portfolio performance: the variation of the portfolio over the month m

n: number of stocks followed by the broker house

$recoi$: recommendation on stock i (BUY=1, SELL=-1, HOLD=0 (neutral)) at the begining of month m

$perfi$: performance in % of stock i over the month (m) = price(i,end(m))/price(i,end(m-1))-1

Then we compute a portfolio price based 100:

$$\boldsymbol{Portfolio\ price} = \boldsymbol{100} * \prod_{\boldsymbol{m=1\ to\ M}} (\boldsymbol{1} + \boldsymbol{P}(\boldsymbol{m}))$$

Where:

Portfolio price: the price of the portfolio over the study period (1994 -2005) based 100 as of 31/12/93

M: number of month over the study period

m: month number

(m): performance of the broker house recommendation portfolio as calculated previously

To measure the average broker portfolio performance, we compute an average portfolio series:

$$\boldsymbol{Average\ Portfolio\ price} = \boldsymbol{100} * \prod_{\boldsymbol{m=1\ to\ M}} (\boldsymbol{1} + \boldsymbol{average}_{\boldsymbol{i=1\ to\ n}} (\boldsymbol{P_i}(\boldsymbol{m})))$$

Where:

Average Portfolio price: the price of the average broker portfolio, rebalanced on a monthly basis over the study period (1994-2005) based 100 as of 31/12/93

M: number of month over the study period

m: month number

(m): performance of the broker house (i) recommendation portfolio as calculated previously

N: number of brokers

[2] https://www.spglobal.com/spdji/en/documents/methodologies/methodology-sp-us-indices.pdf

To compare brokers' performance to an equiweighted comparable benchmark we computed an equiweigthed portfolio price:

$$\boldsymbol{Equiweighted\ Portfolio\ price} = \mathbf{100} * \prod_{\boldsymbol{m=1\ to\ M}} (\mathbf{1} + \boldsymbol{average}_{\boldsymbol{i=1\ to\ n}}(\boldsymbol{E_i(m)}))$$

Where:

Equiweighted Portfolio price: the price of the equiweighted portfolio, rebalanced on a monthly basis over the study period (1994-2005) based 100 as of 31/12/93

M: number of months over the study period

m: month number

$\boldsymbol{E_i(m)}$**:** performance of the equity (i) during month (m)

Recommendation dispersion

We choose to measure recommendation dispersion at two levels: equity level and broker level, by building BUY portfolios (i.e. made of stocks with buy and strong buy recommendations only). At equity level, Janunts (2010) analyses the relationship between analyst disagreement and stock returns, using the standard deviation of recommendations as a proxy for analyst disagreement. We follow the same approach to compute the dispersion of recommendation.

At broker level, we choose to compute our portfolio performance in a very similar way as Merli, *et al.* (2021), i.e., the monthly return of each portfolio is calculated as the arithmetic average of the monthly returns of the securities making up this portfolio.

Dispersion of recommendations (equity level dispersion)

The dispersion at the equity level is meant to measure the degree of disagreement between brokers on their recommendation. For each stock we compute the standard deviation among all the recommendations.

$$\mathbf{dispersion}\ (\mathbf{s}, \mathbf{m}) = \mathbf{Stdev}_{\boldsymbol{i=1\ to\ n}}\ (\boldsymbol{Recommendation_i(s, m)})$$

Where:

Dispersion (m): the standard deviation of the brokers' recommendation for one stock at date (m)

s: a particular stock

n: number of brokers with a performance over month(m)

m: month number

$Recommendation_i(\mathrm{s}, m)$: broker house (i) recommendation at month (m) for stock (s)

We then computed the median dispersion over all the stocks of the STOXX 600 index at date (m):

$$\textbf{Median dispersion}\ (\mathbf{m}) = \textbf{Median}_{=1\ to\ n}(\textbf{dispersion}\ (\mathbf{s}, \mathbf{m}))$$

Where:
Median dispersion (m): the median of standard deviations of all the constituants of the STOXX 600 index
n: number of stocks in the STOXX 600 index
m: month number
$dispersion\ (s, m)$ *:* dispersion as calculated previously

Dispersion of performances of portfolio built with recommendations (broker level dispersion)

To measure the discrepancy between different types of recommendations, Bradshaw (2004) builds portfolios by taking the mean consensus recommendations for each stock each month and creating quintile of recommendation to create five portfolios. We chose a different computation method to consider the difference between brokers which is erased when using consensus recommendations. The dispersion among brokers at the portfolio level is meant to measure the degree of discrepancy between brokers' portfolio performances. To compute this figure, we aggregated first the recommendations by building BUY portfolios, and then calculated a dispersion of the portfolio performance, at broker level.

$$\textbf{dispersion}\ (\mathbf{m}) = \textbf{Stdev}_{i=1\ to\ n}\ (\boldsymbol{Perf}_i(\boldsymbol{m}))$$

Where:
Dispersion (m): the standard deviation of the brokers' performance over month(m)
n: number of brokers with a performance over month(m)
m: month number
$P(m)$: performance of the broker house recommendation portfolio

Ranking

Historically, surveys about buy side analysts ranking are not quantitative methods but based on opinion surveys (Brown *et al.* (2015); Brown *et al.* (2016); Kim *et al.* (2021); Emery and Li, 2009) in the way some investment magazines do it. Emery and Li (2009) discuss two popular analyst rankings, the All-American Research Team by I/I and the "Best on the Street" analyst rankings by WSJ. They

find that there are some differences between the two rankings, with performance being a more important determinant of being a WSJ star than an I/I star. However, the overall patterns in the two rankings share important similarities, with recognition being a critical aspect. For 40 years, *Starmine* chooses the "top ten" stock analysts in 56 countries, based on their timely picks in the market. *Starmine*'s ranking measures the outperformance of sell-side analysts who provide broker clients with estimates and recommendations based on their benchmarks, and weights them by the number of securities covered. The first ranking distinguishes those who have successfully anticipated astute stock picking choices or which securities to invest in within a portfolio. The outperformance is expressed as a percentage compared to the average performance of a portfolio of all securities in a sector. The second ranking distinguishes the ten most skilled analysts in anticipating the performance of a single security. The accuracy of earnings forecasts is evaluated on a scale of 0 to 100 by *Starmine,* using an in-house indicator called the Single Stock Estimate Score (SSES). "It takes into account many factors" writes *Starmine,* including the analyst's absolute and relative error rate, timing of trades, and the value of the profits generated. Kucheev *et al.* (2017) compare the profitability persistence of the investment recommendations of analysts listed by WSJ, I/I and *Starmine* and they observe a better performance for a group of star sell-side analysts rated by *Starmine*.

Sidhu and Tan (2011) analyzed a sample of analysts over the subprime bubble formation and collapse for Australian and US listed equities. They ranked analyst by decile of earning estimate errors and analyzed the re-ranking between the pre bubble collapse (2003-2006) and the subprime bubble collapse (2007-2008).

Given the limitations of the rankings provided by the press and our research objective, we have chosen as Sidhu and Tan (2011) to produce our own performance-based financial analysts rankings during the dot-com bubble, from its formation until the recovery. We calculate yearly portfolio performances from 1994 to 2005. We then ranked each broker in respect of their performance each year and compared the corresponding league tables. To make ranking more consistent over the year we sorted brokers into quartiles.

2.3. Models

For each hypothesis, we first conducted a descriptive analysis of the data to analyze the phenomenon observed. We then implemented different linear and nonlinear models to test the hypothesis from a statistical point of view.

Table 1 - Models

Hypothesis	Raw data	Measures	Methods	Models	Tests
H1	Recommendations	Standard Deviation	ANCOVA	Stdev(reco)=f(NumberReco,FY(i)), i=1994 to 2005	Student T
H2	Portfolio performance	Standard Deviation	ANOVA	Stdev(perf)=f(FY(i)), i=1994 to 2005	Student T
H3	Portfolio performance	% of portfolio overperforming the benchmark	ANOVA	% of portfolio overperforming the benchmark = f(FY(i)), i=1994 to 2005	Student T
H4	Portfolio performance	Rank of yearly performance	Multinomial Logistic regression	Quartile (year(n+1)) = f(Quartile (year(n)) for each year from 1994 to 2005	Wald Chi2

3. Results and discussion

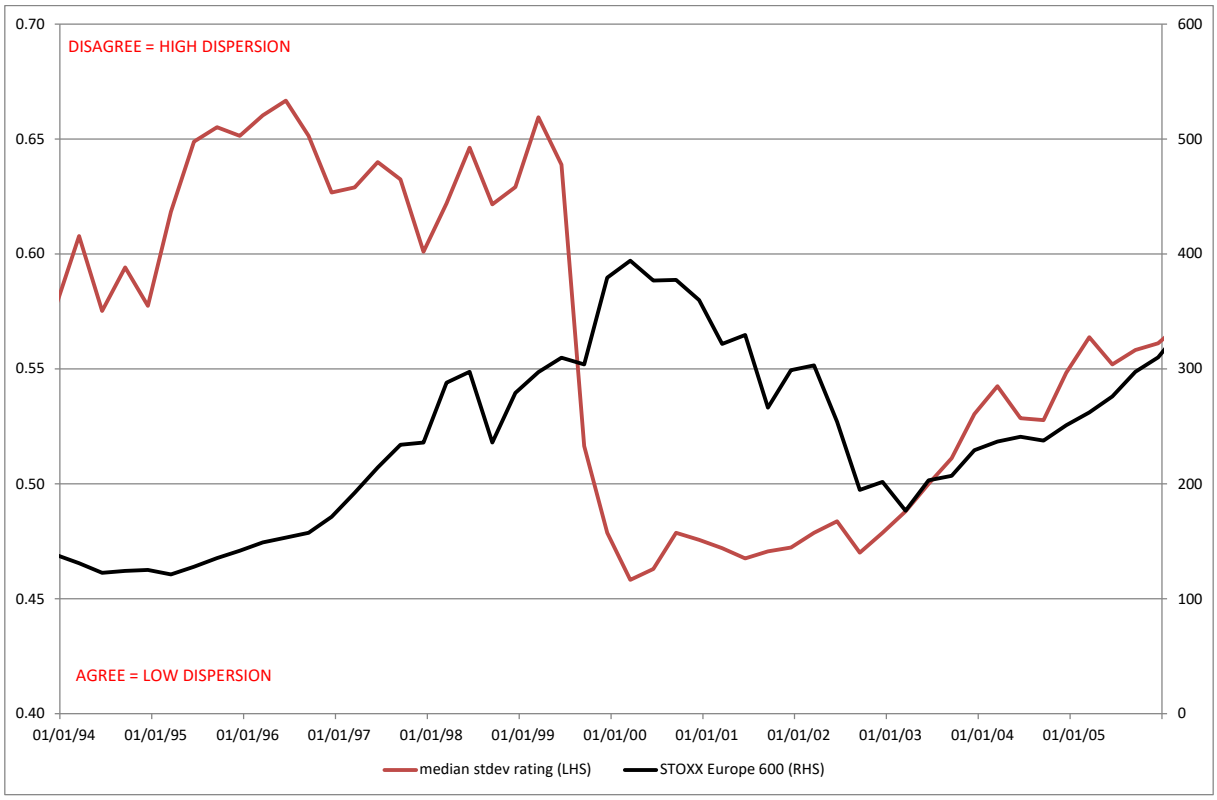
This article analyzes the impact of the dot-com bubble on the analyst' recommendation performance. First, we assess whether recommendation dispersion is positively or negatively correlated to bubble formation. Second, we evaluate whether recommendation performance itself is positively or negatively correlated to bubble formation. And finally, we observe whether the bubble distorts the ranking of analysts, based on the performance of their buy recommendation portfolio.

3.1. The dot-com bubble increase and collapse impact on Brokers recommendations dispersion

The median recommendation dispersion at equity level was very high during the pre-bubble and the bubble rising period (1994-March 2000), then during the collapse the dispersion decreased, and bounced back after March 2003 (end of the collapse, see figure 2). This analysis considers the Buy but also the Sell and Neutral recommendations.

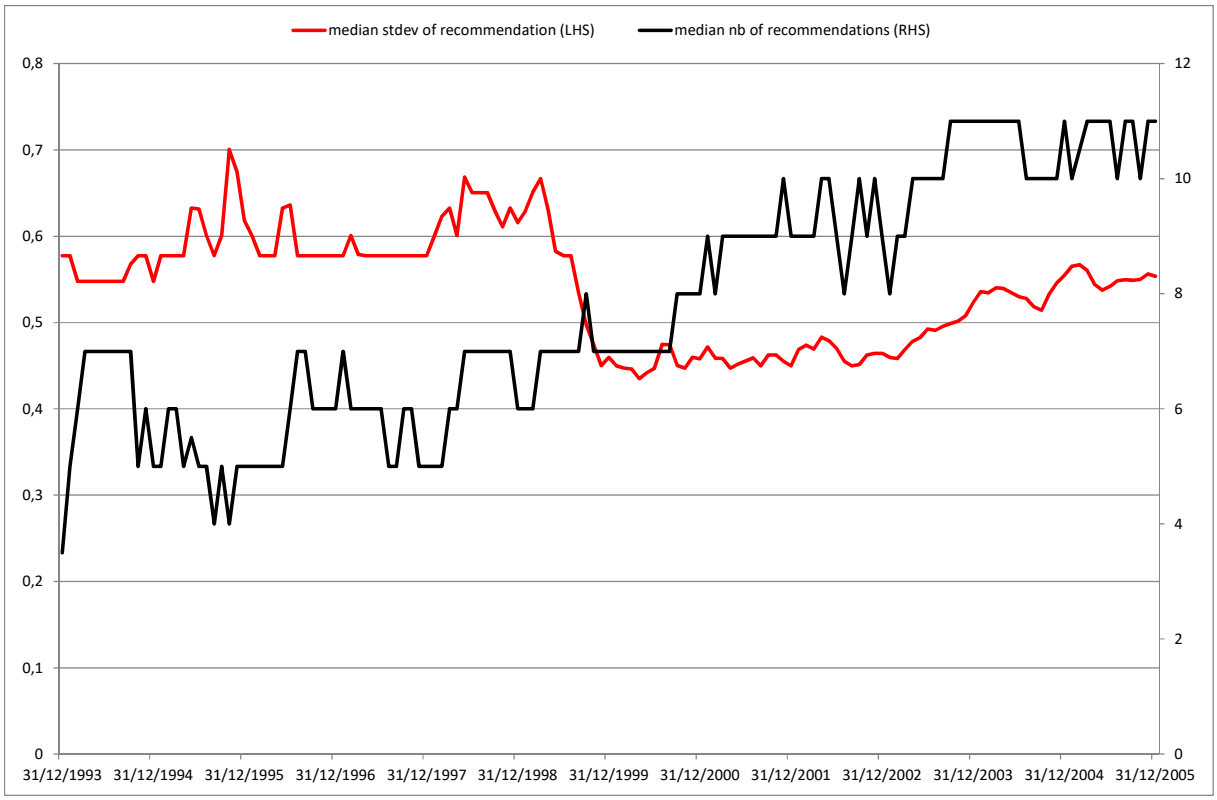
As figure 2 shows, brokers did not agree about the new economy; therefore, the dispersion was higher during bubble rise. During the collapse brokers seemed to agree more on the end of the new economy illusion, and the necessary market correction.

Figure 2 - Monthly median equity recommendation dispersion vs. price of the Europe Stoxx 600 Equity index



Each month we compute the standard deviation for each stock with more than one recommendation. As figure 3 shows, the median number of recommendations per stock increases steadily from 4 on 31/12/1993 to 11 on 31/12/2005. The number of analysts contributing to the *Factset* database increased over time which explains why the number of recommendations increased. This could induce bias and impact the standard deviation of the recommendation and could explain some of its decrease. To neutralize this bias, we use the number of analysts as a control variable.

Figure 3 – Monthly median equity recommendation dispersion vs. median number of recommendations per stock



The ANCOVA analysis (table 2) shows a clear and statistically significant contribution of all the years on recommendation dispersion. 1994-1999 years, corresponding to the before and rise of the bubble periods, have a positive contribution to recommendation dispersion. FY 2000-2003 which correspond to the collapse of the bubble have a strong negative contribution. FY 2004 and FY 2005 have a slightly negative and null contribution. These figures confirm that there was some disagreement among the brokers about how much the market should rise during the development of the dot-com bubble. During the collapse brokers seemed to agree more about the negative direction that equity valuation took. The parameter becomes less negative with time though, reaching 0 in 2005, showing a return to average after the recovery.

The model do not confirm the negative impact of the number of recommendations on standard deviation (parameter with a positive and significant value of 0.005). On the contrary, our model shows that the more broker, the higher the standard deviation of their recommendations. This clears out our concern that the database increasing number of analysts might have flawed the results.

Table 2 - ANCOVA on recommendation dispersion

Bubble timing	Variables	Value	Standard error	t
	Intercept	0,482	0,002	193,226 ***
	Number of recommendations per company	0,005	0,000	45,229 ***
Before bubble	FY-1994	0,056	0,004	14,352 ***
Before bubble	FY-1995	0,094	0,003	28,120 ***
Before bubble	FY-1996	0,093	0,003	28,645 ***
Bubble rise	FY-1997	0,080	0,003	26,219 ***
Bubble rise	FY-1998	0,096	0,003	32,154 ***
Bubble rise	FY-1999	0,029	0,003	9,899 ***
Bubble collapse	FY-2000	-0,071	0,003	-24,499 ***
Bubble collapse	FY-2001	-0,078	0,003	-26,969 ***
Bubble collapse	FY-2002	-0,075	0,003	-25,506 ***
Bubble collapse	FY-2003	-0,057	0,003	-19,065 ***
After Bubble	FY-2004	-0,014	0,003	-4,668 ***
After Bubble	FY-2005	0,000	0,000	

***, ** and * represent significance at the 1%, 5% and 10% respectively

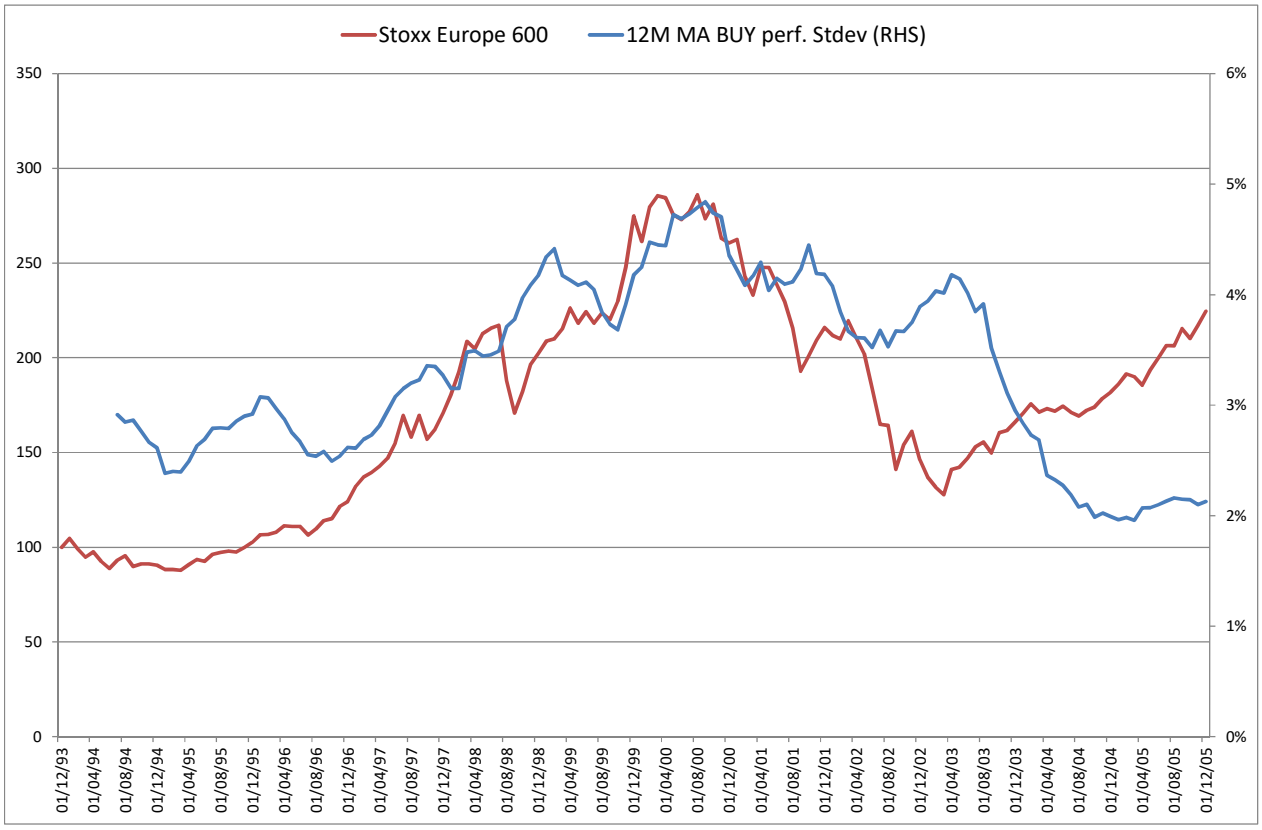
Our results show that Hypothesis 1 is only confirmed during the dot-com bubble's development with an increase of the brokers recommendations dispersion, while we observe a decrease of the brokers recommendations dispersion during the collapse. These results contradict those of Janunts (2010) who observe during the dot-com bubble in Europe that there is a link between the standard deviation of recommendations and future stock returns, as measured by the performance of the Europe Stoxx 600 index. Market index returns are on the rise when dispersion is high and are negative when dispersion is low. Contrary to Kucheev and Sorensson (2019), there was a great wave of optimism during the rise of the dot-com bubble in Europe that was not just seasonal and lasted from 1996 to 2000. There might be a seasonal effect on recommendations, but not on recommendations dispersion according to our findings. Our results are partly consistent with Jiang and Kim (2014) which show a strong correlation between recommendation revisions and jumps in stock prices. If we consider that greater dispersion is a sign of more revisions, then the higher level of earnings dispersion that we find during bubble rise agrees with them. On the contrary, when the bubble collapsed, the dispersion was much lower, indicating fewer recommendation revisions at a time of abundant jump prices.

3.2. The dot-com bubble increase and collapse impact on Brokers recommendation performance dispersion

As methodology section states it, the dispersion among brokers is meant to measure the degree of disagreement between brokers on their recommendation. In addition, we calculate a portfolio performance dispersion which shows how correlated brokers recommendations performance are.

Figure 4 shows the monthly BUY performance dispersion versus the STOXX 600 index. There is a doubling of the dispersion from 2.5% before the dot-com bubble to 5% at the top of the bubble. After the collapse of the bubble, things return to normal with an average dispersion of 2%. At portfolio level, the dot-com bubble clearly triggered a huge disagreement in brokers recommendations and investment timing (dates at which brokers switch from a recommendation to another).

Figure 4 – Portfolio monthly recommendation dispersion vs. price of Stoxx Europe 600 index



The ANOVA analysis (table 3) shows a positive and statistically significant contribution of all the 1997-2003 years corresponding to the rise and fall of the bubble have a positive contribution to Buy performance dispersion. The portfolio performance dispersion increases during bubble rise and collapse and confirm our hypothesis 2. There is also an increase of parameters from 1997 to 2003. The parameters are smaller before and after the bubble but not significant except for 1995. These results contrast again with those of Janunts (2010), a positive correlation during bubble rise (high dispersion and high returns) and a negative correlation during bubble collapse (high dispersion and negative

returns). If we consider the bubble period as a whole, the rise and the collapse offset each other, and the overall correlation could be close to zero as Janunts (2010) shows.

Table 3 – ANOVA on recommendation performance dispersion

Bubble timing	Variables	Value	Standard error	t
	Intercept	0,021	0,003	7,005 ***
Before bubble	FY-1994	0,005	0,004	1,135
Before bubble	FY-1995	0,008	0,004	1,845 *
Before bubble	FY-1996	0,005	0,004	1,143
Bubble rise	FY-1997	0,011	0,004	2,657 ***
Bubble rise	FY-1998	0,020	0,004	4,769 ***
Bubble rise	FY-1999	0,021	0,004	4,782 ***
Bubble collapse	FY-2000	0,022	0,004	5,195 ***
Bubble collapse	FY-2001	0,021	0,004	4,788 ***
Bubble collapse	FY-2002	0,018	0,004	4,109 ***
Bubble collapse	FY-2003	0,008	0,004	1,920 *
After Bubble	FY-2004	-0,001	0,004	-0,312
After Bubble	FY-2005	0,000	0,000	

***, ** and * represent significance at the 1%, 5% and 10% respectively

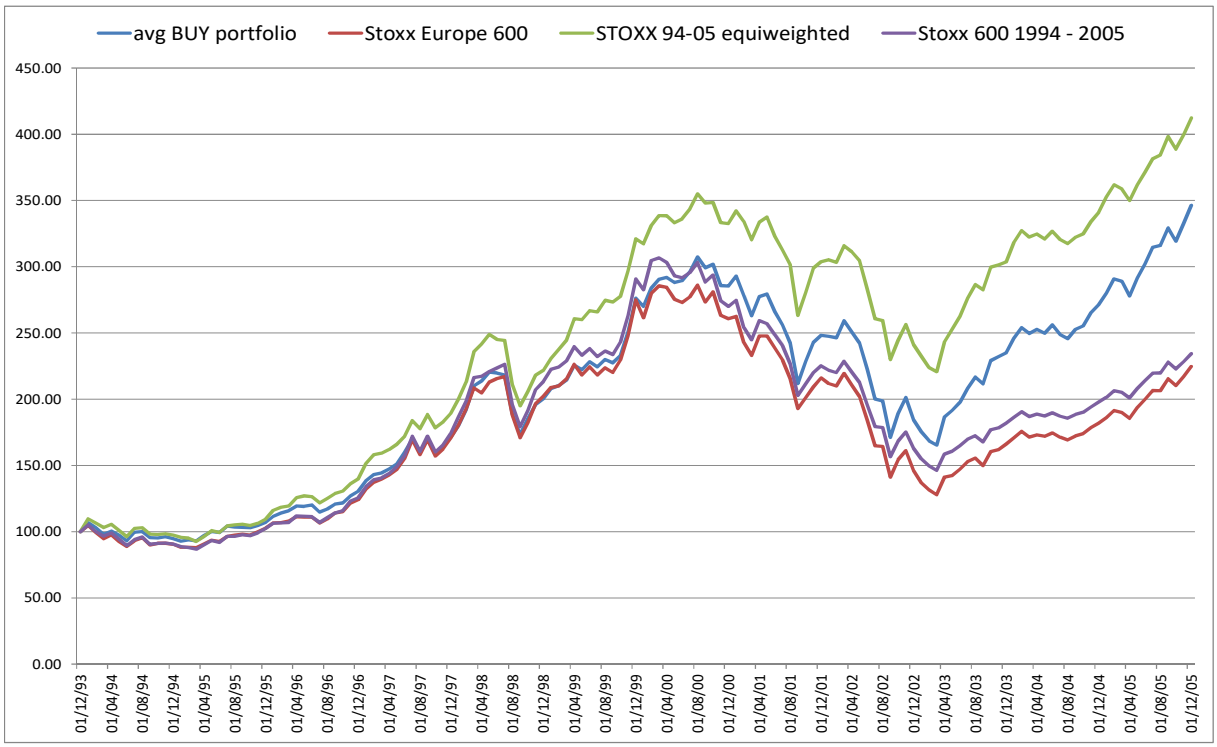
3.3. The impact of the dot-com bubble on Brokers recommendations' quality measured by portfolio performance

We value portfolios on a 100 basis at the beginning of the referral history for each broker house. The performance of these portfolios is absolute and is of course affected by the underlying market performance, represented by the Europe Stoxx 600 index in our study. A broker Buy recommendation will be considered of good quality if his portfolio's performance is superior to the benchmark, even if this performance is negative. For that matter, Bessler and Stanzel (2009) compute directly a performance relative to the benchmark.

In a first attempt to observe the quality of the broker Buy recommendations, we measure an average broker portfolio performance (blue curve in figure 4). When compared to the Europe STOXX 600 index the overperformance is quite striking: 250% for the average broker portfolio vs. 150% for the Europe STOXX 600. We then try to remove the survivor bias in the sample that consists of all stocks that were included in the Europe Stoxx 600 index between 31/12/1993 and 31/12/2005 (1323 stocks

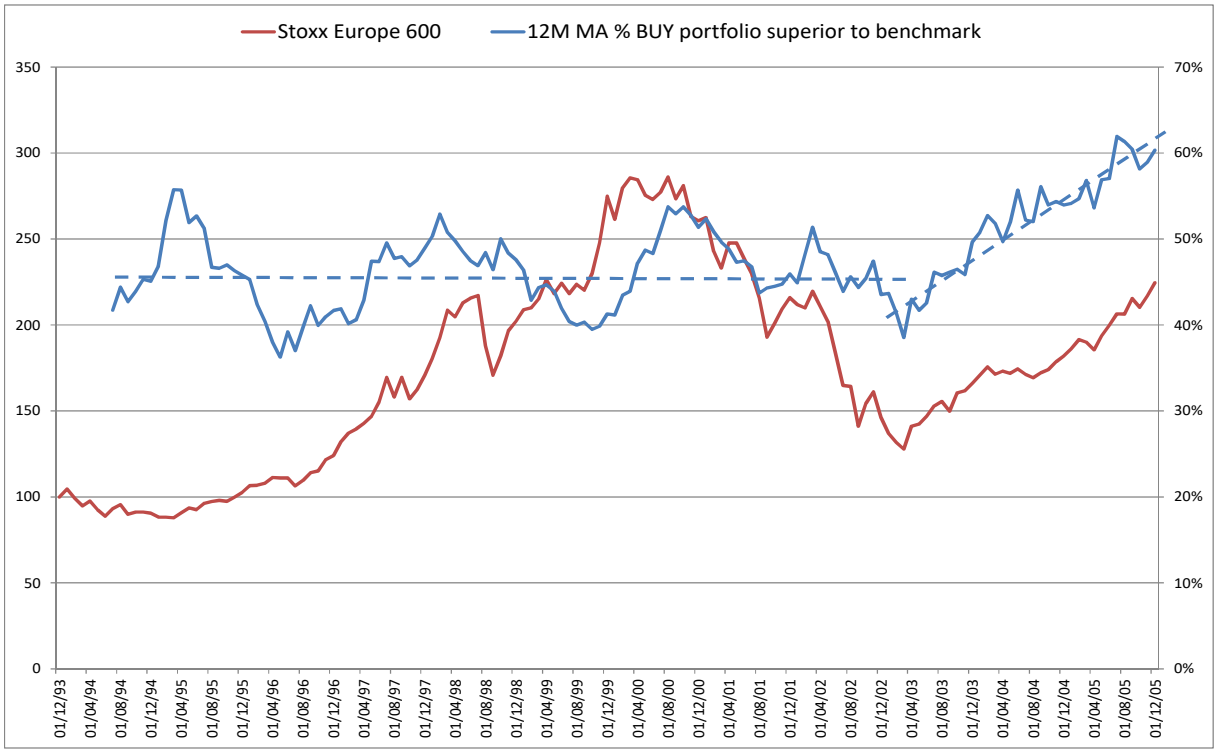
that were included in the index due to their good performance before inclusion, creating a positive bias in the sample compared to the index). Therefore, we compute an index (Stoxx 1994-2005) which includes all the stocks of the sample. As the purple curve shows in figure 4, a positive bias is observable, but it is not significant enough to explain the overperformance of the average broker portfolio.The performance gap is also biased by the difference of calculation method: the index is weighted by market caps, whereas our broker portfolios are equiweighted. To rectify this bias, we calculate an equiweighted version of the Europe STOXX 600 (STOXX 94-05 equiweighted, green line in figure 4), and find out that the brokers have not beaten the market on average, quite the opposite: the equiweighted index performance is 310% against 250% for the average broker portfolio over the same period. The benchmark we use to compare broker performance is therefore the STOXX 94-05 equiweighted (green line in Figure 4).

Figure 4 – Average broker portfolio performance vs. benchmarks



To refine our analysis, we calculate the proportion of brokers portfolios overperforming the benchmark on a monthly basis. This analysis (figure 5) shows that the underperforming period lasts from the prebubble (1994) to the bubble bottom (March 2003) period with on average only 45% of the brokers portfolio overperforming the equiweighted benchmark. The proportion of overperforming portfolios increases from March 2003 onwards to reach 60% at the end of the sample period (31/12/2005).

Figure 5 - Share of portfolios overperforming the benchmark



The ANOVA analysis (table 4) shows a negative and statistically significant contribution for only a few of the pre-bubble years (1994-1996) and of the bubble years (1999-2002). These statistical tests, even though partially significant, confirm that brokers Buy portfolio performed less well during the pre-bubble, rise and collapse periods that they did after in accordance with Hypothesis 3.

Table 4 – ANOVA on % of portfolio overperforming benchmark

Bubble timing	Variables	Value	Standard error	t
	Intercept	0,603	0,054	11,111 ***
Before bubble	FY-1994	-0,153	0,077	-1,986 **
Before bubble	FY-1995	-0,146	0,077	-1,896 *
Before bubble	FY-1996	-0,187	0,077	-2,429 **
Bubble rise	FY-1997	-0,114	0,077	-1,484
Bubble rise	FY-1998	-0,127	0,077	-1,659 *
Bubble rise	FY-1999	-0,190	0,077	-2,480 **
Bubble collapse	FY-2000	-0,090	0,077	-1,168
Bubble collapse	FY-2001	-0,144	0,077	-1,874 *
Bubble collapse	FY-2002	-0,168	0,077	-2,185 **
Bubble collapse	FY-2003	-0,107	0,077	-1,391
After Bubble	FY-2004	-0,064	0,077	-0,831
After Bubble	FY-2005	0,000	0,000	

***, ** and * represent significance at the 1%, 5% and 10% respectively

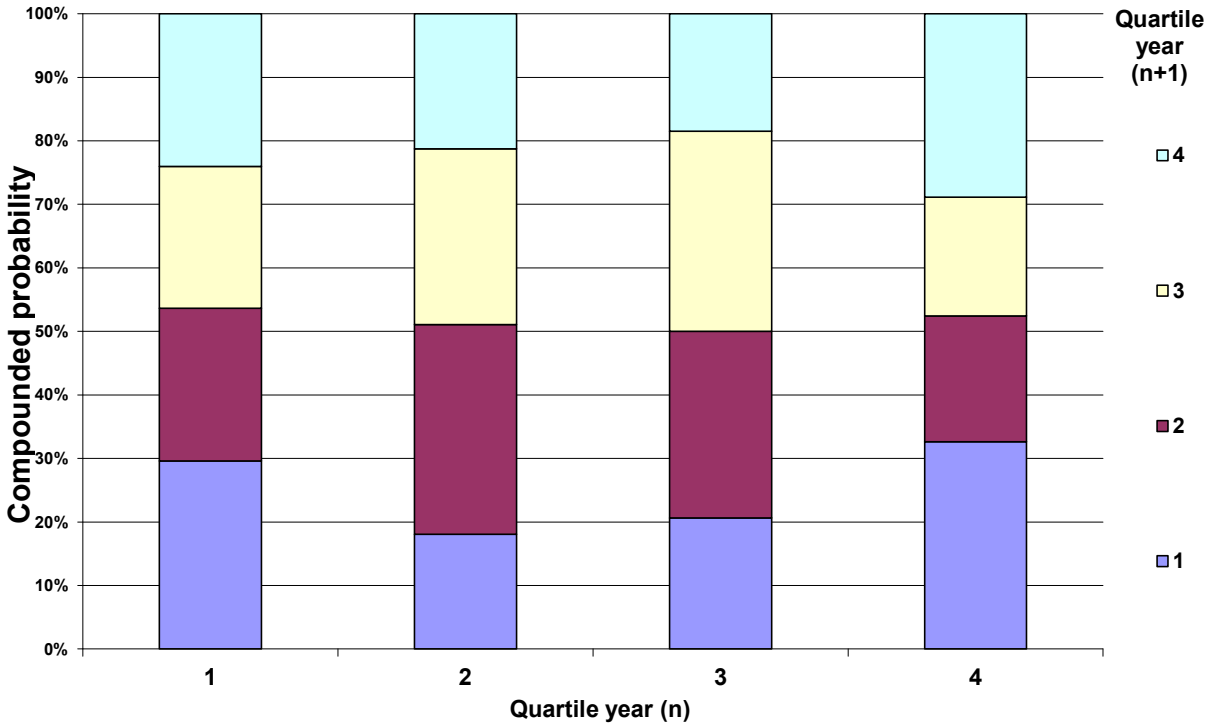
While our results confirm that broker performance is negatively affected by the dot-com bubble, the tests also show that their performance was just as bad before the bubble. The results for the post-bubble years have a much negative impact in the sense of hypothesis 3, although not statistically significant. This shows that there is no added value from analysts' recommendations during the dot-com bubble in Europe. This is consistent with Forbes *et al.* (2020), which observe that during the internet bubble in the UK, analyst recommendations were not valuable at the aggregate level and with Merli, *et al.* (2021) which show that in a normal environment (no bubble) an analyst's portfolio can post a better performance than the benchmark. The parameters of our model exhibit an increase of the percentage of broker overperforming the benchmark after the bubble, although not significant. On the contrary, these conclusions contradict the results of Janunts (2010) according to which there is no impact on the performance of brokers over high dispersion times, such as the dot-com bubble.

3.4. The impact of the dot-com bubble on the ranking of broker firms based on their recommendation portfolio performance

The wide dispersion of broker portfolio performances implies that some analysts are more accurate than others. To assess more precisely this point, we calculate yearly portfolio performances from 1994 to 2005, like we do to test hypothesis 3. We then rank each broker in respect of their performance each

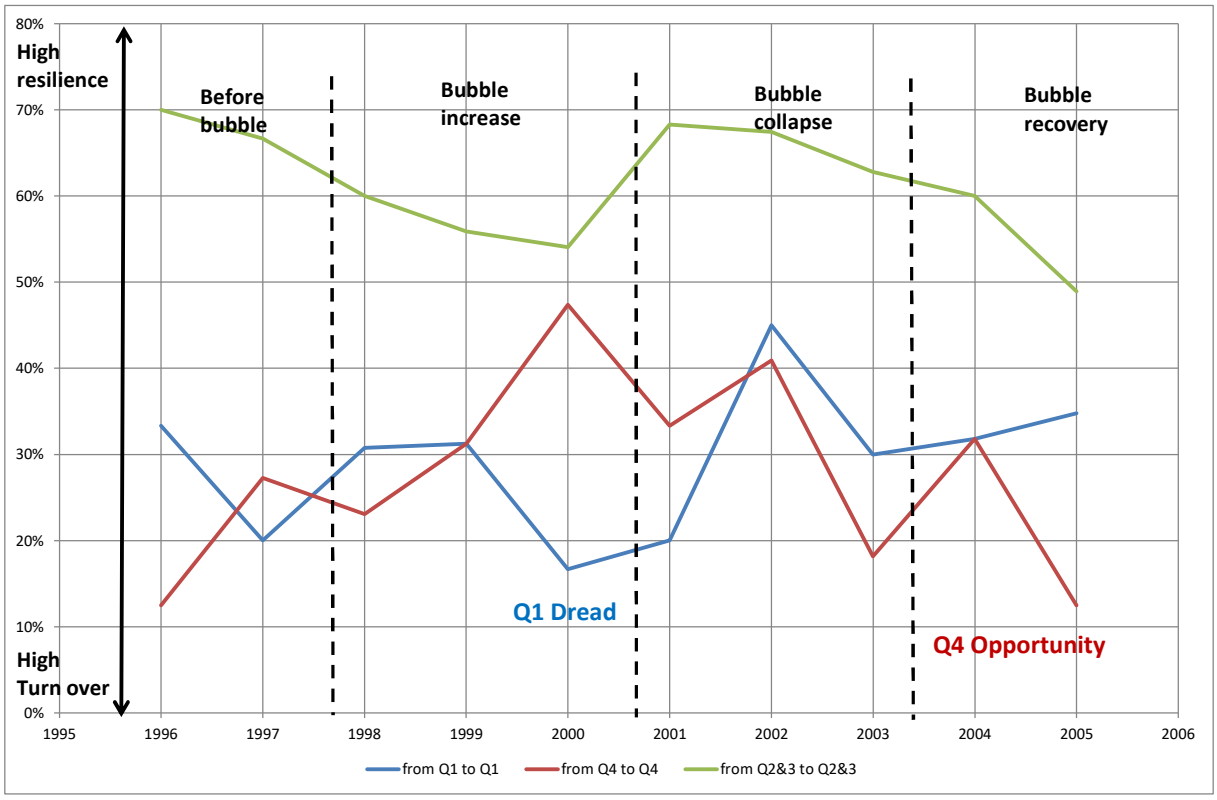
year and compare the corresponding league tables. To make ranking more consistent over the years, we sort brokers into quartiles. Looking at the average transition percentages between quartile from the previous year to the current year in figure 5, we find that less than 30% of the top quartile of brokers each year are still there the following year. Brokers in the two middle quartiles have a 60% chance of staying there. Interestingly, the bottom quartile is as volatile as the others, only 30% of the brokers stay there from year to year, and 28% manage to jump into the top quartile. Some names do stand out with consistently good results. For instance, small brokers specialized in their domestic markets perform the best, especially in Spain, Scandinavia and Italy.

Figure 5 - Year on year transition percentages between quartile for brokers' Buy portfolio performance



To better understand the impact of the bubble, we breakdown year by year the self reranking percentages (brokers remaining in the same quartile) by quartiles (figure 6).

Figure 6 – Self reranking percentages by quartile year on year



1st quartile: best analysts at stock Buy recommendations (blue line)

The dot-com bubble made it very difficult to maintain in the first quartile. 30% remained in the first quartile before the start of the bubble (1996-1999), compared to 18% and 20% at the peak of the bubble (2000-2001). Overall, the stability of the first quartile improved over time, reaching 43% in 2002 and remaining above 30% until 2005. The 1998 Asian crisis, which was not a systemic crisis, had no major impact on the stability of the analyst ranking, which was then slightly its average of 30%.

4th quartile: worst analysts at stock Buy recommendations (red line)

The development of the dot-com bubble (1998-2000), saw the bad performers stay in their quartile more and more over the years, reaching 47% in 2000. The bubble burst had also a dramatic impact on bad analyst quartile stability. It was for them an opportunity to head down to their before bubble state of 13% year on year reranking. The figure 6 shows that bad analysts had much more difficulties to exit the worst quartile during the bubble period.

2nd and 3rd quartiles: mediocre analysts (green line)

In line with the improvement of stability of the 1st quartile, Q2 and Q3 ‘s stability rate degraded slowly over time from 70% in 1998 to 50% in 2005.

To confirm these observations, a logistic regression analysis on quartiles’ year on year transition is carried out (Table 5).

First, the probability to belong to quarter 1 in year n+1 is studied in relation with quarter in year n. The odd ratios are significantly low from quarter 2 and 3 (Q2&3) into Q1 before the bubble and during bubble collapse showing a higher stability of quarter 1, reinforced by a significantly high ratio (2.48) of quarter 1 self-replication in years 2001-2002. However, no significant differences are exhibited during the rise. The odd ratios of quarter 4 (Q4) into Q1 are significantly high at the beginning of the bubble (1996-1997) at the top (2000 to 2001) and at the end of the collapse (02-03) demonstrating the great reshuffle that occurred at these key moments of the bubble. These three key periods took place at the time of the economic turmoil: 1996-1997 was the start of the new economy, 2000 to 2001 was the end of the dot-com mirage and 2002-2003 was the end of the bubble collapse. Each of these key periods when daring was a quality, was an opportunity to shine for the nonconformists of the worst quartile.

Second, the probability to belong to quarter 4 in year n+1 is studied in relation with quarter in year n. The odd ratios for the worst quartile (Q4) into itself are significantly high during the rise of the bubble (4.80 to 2.91) and at its top (2.09 between year 2000 and 2001), showing that it was difficult for underperforming broker houses to break out of their quartile during this period of rise. The odd ratios from Q2&3 are significantly low during the collapse, showing the same stability towards Q4 as Q1.

These findings confirm hypothesis 4, conjecturing that the dot-com bubble distorts the ranking of brokers. The results indicate a deep reshuffle in ranking, especially from the worst quartile to the best. The exchange between top and bottom quartile are seldom but correspond to pivot periods of the bubble. Surprisingly the models show during these key periods a high exchange rate between Q1 and Q4 and at the same time a high stability of Q4 into itself.

Table 5 - Odds ratio Model parameters (Variable Qn+1): Qn+1=f(Qn)

Odds ratio	bubble timing	before	rise	rise	rise	Rise	collapse	collapse	collapse	after	after
Category Qn+1		95 to 96	96 to 97	97 to 98	98 to 99	99 to 00	00 to 01	01 to 02	02 to 03	03 to 04	04 to 05
Quarter 1 in year n+1	Qn-1	2,28	0,42	0,89	1,26	0,57	0,82	2,48 **	1,09	1,89	1,54
	Qn-2&3	0,22 **	0,53	0,95	0,63	1,26	0,44 **	0,33 ***	0,29 ***	0,77	0,67
	Qn-4	2,02	4,45 **	1,19	1,26	1,40	2,75 **	1,21	3,13 **	0,69	0,96
Quarter 4 in year n+1	Qn-1	3,48 *	0,46	0,62	1,31	0,71	1,07	0,98	0,66	1,99 *	1,19
	Qn-2&3	0,50	0,46	0,66	0,58	0,49 *	0,45 **	0,53 *	1,08	0,45 **	1,65
	Qn-4	0,58	4,80 ***	2,47 *	1,31	2,91 **	2,09 *	1,93	1,39	1,11	0,51 *

***, ** and * represent significance at the 1%, 5% and 10% respectively

Emery and Li (2009) observe that WSJ and I/I rankings have no significant investment value in terms of recommendations. Although these rankings only concern the top 3 brokers (as opposed to all brokers in our study), their findings seem to converge with ours when we show that exchanges between the top and bottom quartile can be quite intense. On the other hand, our results do not agree with those of Kucheev *et al.* (2017) which conclude that analyst ranking is important for making robust investment decisions, as we demonstrate that this ranking is volatile during bubble periods. Similarly, our results on the European financial market contradict those of Bagnoli *et al.* (2008) which show that the most accurate analysts during the pre-crisis period continue to be significantly more accurate during the crisis period than their peers on listed Australian and US equities.

4. Conclusion

Our results propose contrasted conclusions on brokers' recommendation dispersion and quality. Portfolio dispersion increases during the dot-com bubble, while equity dispersion only increases during the rise of the bubble and flattens during the collapse in contradiction with previous studies which observe no link between recommendation volatility and stock return (Janunts, 2010; Kucheev and Sorensson, 2019). We find that a minority of portfolios over performs the benchmark during the

dot-com bubble, while a majority does once the stock market recovers from its collapse in accordance with previous literature (Forbes *et al,.* 2020; Merli, *et al.*, 2021). Our findings also confirm that the bubble distorts the ranking of brokers year after year. We found notably that the transition percentages from the bottom quartile to the top quartile are especially high in times of market pivots such as the start of the bubble in 1996, the burst of the bubble in 2000, and the recovery in 2003. Our results are consistent with previous empirical studies (Emery and Li, 2009) stating that ranking is not correlated with investment value and therefore performance. However, they clearly contradict some previous findings on the US and Australian market during the dot-com bubble (Bagnoli *et al.*, 2008), which show that the most accurate analysts in the pre-crisis period continue to be significantly more accurate during the crisis period. From a practical point of view, our results show large variations in the dispersion and quality of broker recommendations during the dot-com bubble. The reliability of the reputation of broker houses is also heckled and it seems doubtful to trust them during troubled times.

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ARTICLE 2: Spotting the peak of the dot-com bubble: the lessons of sell side analysts' behavior through their earnings forecast

Spotting the peak of the dot-com bubble: the lessons of sell side analysts' behavior through their earnings forecast

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ABSTRACT

This study focuses on sell-side analysts' behavior during a stock market bubble and makes a key contribution: the identification of a dispersion curve inversion at the peak of the bubble. This inversion, where analysts' earnings forecasts exhibit greater disagreement three months after the fiscal year-end than twelve months before, provides a powerful early-warning signal, making it possible to anticipate the bursting of the bubble. Research on behavioral biases among equity analysts requires a period in which such biases can be most clearly observed: a genuine market bubble. The 1995–2005 period offers a unique opportunity, as it represents the only purely equity-driven bubble in recent history. Unlike the 2008 subprime crisis, which originated in the real estate market, this episode was rooted directly in equity markets, making it ideal for studying forecast dispersion and revision patterns. In Europe, this bubble was particularly shaped by the telecom sector, rather than the internet sector that dominated in the United States. The extraordinary growth and valuations of telecom companies during this period created a fertile ground for analyst over-optimism and herding behavior, ultimately culminating in the sharp correction of the early 2000s. By examining this context, our analysis not only sheds light on the dynamics of forecast dispersion during bubbles, but also proposes a novel predictive indicator for identifying their imminent collapse.

Keywords: Earnings dispersion, estimate errors

We gratefully acknowledge the contribution of *Factset Inc.* for providing earnings forecast data, available through the Factset Workstation System. This data has been provided as part of a broad academic program to encourage earnings expectations research.

1. Introduction

As of mid-2025, for more than a year, the timing of the peak of the U.S. stock market bubble has been a key concern. Analysts' forecasts play a vital role by synthesizing indicators such as extreme valuations, sector concentration, and investor euphoria to anticipate the bubble's potential peak and subsequent crash. Market phenomena like record valuation ratios, the rise of speculative "meme stocks," and the dominance of a handful of tech companies, highlight the system's fragility and the necessity of informed forecasting.

This paper aims to examine the behavior of sell-side analysts during a bubble and to identify shifts in their conduct that may serve as indicators of an impending market peak.

This article focuses on sell-side analysts' behavior during a bubble period. Using forecast, it permits to identify an indicator of a bubble which can help to predict if and when the "peak" will occur. Morris and Alam (2012) examine the role of financial analysts in the Internet stock bubble of 2000 by analyzing data on financial analysts' earnings forecasts (369 Internet stocks in the US). Their study examines changes in financial analysts' earnings forecasts before and after the Internet crash in April 2000. Arif & Sul (2023) examine for 49 countries between 1987 and 2022, how accounting information can forecast industry price crashes and is associated with analysts forecast errors. Shiller has tried to come up with criteria for the characterization of bubbles. None of these proposals, however, focuses exclusively on the forecasts made by analysts (Shiller, 2006). Analysts' earnings forecasts, which predict future earnings of companies, play a crucial role in shaping investor expectations and stock prices (Bandyopadhyay et al., (1995), Barniv et al., (2020)). By analyzing patterns in these forecasts, researchers and investors can potentially identify signs of financial bubbles.

A financial market bubble occurs when the price of an asset significantly exceeds its intrinsic value, driven by exuberant market behavior. Bubbles are typically characterized by rapid price increases followed by sharp declines. Detecting bubbles early is challenging, but earnings forecasts provide valuable data points. Key indicators include: First, overoptimistic Earnings Forecasts: Excessive optimism among analysts, leading to earnings forecasts that are consistently higher than actual earnings. Second, divergence from Fundamentals: A significant gap between the forecasted earnings and the company's actual performance or broader economic indicators. Third, forecast Revisions: Frequent and substantial upward revisions in earnings forecasts, which may indicate unsustainable expectations.

The dot-com bubble, also known as the telecom bubble in Europe, is a prime example where analysts' earnings forecasts played a pivotal role. In Europe, the bubble was mainly driven by the telecom sector

rather than the technology sector. During the late 1990s, the rapid growth of internet-based companies led to unprecedented optimism among analysts. Earnings forecasts for tech companies were often unrealistically high, driven by the belief that the internet would revolutionize business models and generate massive profits. Researchers such as Hong & Kubik (2003) using large dataset of 8,421 security analysts producing earnings forecasts of U.S. companies between 1983 and 1996, documented how analysts' forecasts during this period became increasingly optimistic, often detached from the companies' actual performance. The excessive optimism fuelled a surge in stock prices, leading to a bubble. When the actual earnings failed to meet these inflated expectations, the bubble burst, causing a dramatic decline in stock prices. In contrast to the 2000 internet bubble, the 2008 subprime crisis was not primarily a financial market bubble driven by unrealistic earnings forecasts. Instead, it was rooted in the real estate market and the proliferation of subprime mortgage lending. The crisis was triggered by the collapse of housing prices, leading to widespread mortgage defaults and significant losses for financial institutions holding mortgage-backed securities. Analysts' earnings forecasts played a role in the financial market turbulence that followed, but the root cause of the crisis was exogenous to the stock market. As pointed out by Reinhart & Rogoff (2009), the 2008 crisis was fundamentally a credit crisis with deep ties to the real estate sector, rather than a speculative bubble within the financial markets themselves. Analyzing analysts' earnings forecasts can provide valuable insights into potential financial bubbles. The 2000 internet bubble is a notable example where excessive optimism and inflated earnings forecasts contributed to the creation and subsequent bursting of a bubble of equity prices. In contrast, the 2008 subprime crisis was driven by factors external to the financial markets, specifically the real estate sector, highlighting the complexity and varied nature of financial crises. Understanding these distinctions is crucial for developing more accurate predictive models and preventing future financial bubbles.

There is a large body of literature that attempts to identify criteria for the detection of the formation and collapse of a bubble of financial assets prices (Siegel, 2003). There would never be *ex ante* agreement on whether a bubble exists or not (Bhattacharya & Xiaoyun Yu, 2008). There could be more agreement about the existence of a bubble *ex post*. There is a bubble when the price deviates too far from the fundamental value (Scherbina & Schlusche 2014). However, there is no agreement on what the fundamental value of an asset is. Ofek & Richardson (2003) suggest that a bubble occurs when the price exceeds the fundamental value, expressed as the discounted value of cash flow. The fact that expected cash flows and discount rates are unobservable is the only problem with this definition. They cannot even be observed afterwards

The theory of earnings forecast biases typically deals with systematic errors in the predictions of earnings by analysts or models, often influenced by cognitive biases or misinterpretations of information.

The information provided by analysts has an impact on the valuation of firms, directly on stock market prices (Chung & Jo, 1996; Rüdiger & Vigier, 2019; Barniv et al., 2020) or on their ability to create value through innovation (Martens & Sextroh, 2021). Empirical evidence indicates that behavioral biases of sell-side analysts impact significantly market efficiency (références). This influence manifests through errors in earnings estimates, the size of revision and varying opinions among analysts, thereby affecting the overall market dynamics (Ramnath et al., 2008). Analysts' expertise and decision-making processes impact earnings forecast dispersion and error. Experienced analysts, leveraging their knowledge and analytical skills, are likely to provide more accurate and less dispersed forecasts compared to less experienced counterparts. The decision-making processes of financial analysts, informed by a deep understanding of market dynamics and firm-specific information, contribute to minimizing forecast errors and reducing the variance in earnings predictions among analysts. The distinction between two forms of forecast accuracy is noteworthy: one pertains to the discrepancy between anticipated earnings and the earnings reported by the company, while the other is defined by the difference between initial earnings projections and the final retrospective earnings forecast (*ex post* estimates) as we compute it. Still, both body of literature holds relevance to our article to the degree that the dispersion of earnings estimates remains consistent, and the trend of earnings accuracy is on a decline over time (Crichfield et al., 1978), regardless of whether the final point of reference is the reported earnings or the *ex post* earnings estimate.

Earnings estimates do not always and systematically reflect all the information available at a given time and do not give a fair value of earnings, hence the formation and collapse of valuation bubble on the stock market.

We try to understand how earnings forecasts interact with a stock bubble. This study examines the impact of the dot-com stock bubble of the 2000s and the forecasts of sell-side financial analysts in European setting. By analyzing the dispersion and the forecasts revisions, we can identify the impact of a bubble before, during and when it bursts, and help investors make more informed and successful decisions when using brokers' estimates. We chose the telecom bubble because it is the only genuine financial market bubble in recent history, unlike the subprime crisis. Additionally, it was mainly driven by a microeconomic cause, which makes it analysable through earnings estimates, our primary data source.

This article aims to highlight the role of sell-side analysts in the formation and bursting of the Internet bubble in Europe by analyzing the dynamics of their earnings forecasts. It examines whether changes in forecast dispersion and revisions can serve as leading indicators to detect the peak of a speculative

bubble. The objective is to provide a behavioral lens through which to interpret the bubble based on analysts' practices, and to offer an empirical contribution to the literature on equity market bubbles.

Our research draws on a unique archival data set that covers the dot-com bubble period and provide forecasts for several horizons. We use original data that were published during the period under study. Data analysis is primarily based on calculations of dispersion and forecast revisions. The study provides forecasts for one year, nine months, six months and three months before closing (FYE), as well as a re-forecast made three months after closing. These time horizons are referred to in the paper as time lags. This article relies on an archival dataset of earnings forecasts issued between 1994 and 2005 by more than 100 brokerage houses, covering the companies included in the STOXX 600 index. These data, extracted from the professional FactSet database in 2006, have not undergone any modification or reprocessing since, which ensures their purity and authenticity as raw primary data.

The setting of the study is unique because it permits to focus on uncertainty in the absence of exogenous macroeconomic uncertainty. The bubble has been driven by fundamentals at the firm level (Liu & Song 2001; Xue & Xu 2021). We analyse only the forecasts characteristics in the context of change in prices, not the relationship between forecasts and price. The PER are used to contextualize the findings. However, the level and changes in prices relative to earnings are used as in the design of the study. We compare the dispersion and revision from year to year but also the intra-year dynamic using time lags.

This study has two methodological contributions. The design uses quarterly forecasts of FYE earnings to highlight the dynamics. This way, we demonstrate the impact of the forecast timing on revisions and dispersion. Many studies have been carried out on the dot-com bubble in the US, but only one in Europe (Beckers et al., 2004). Most importantly, it makes two direct major empirical contributions about analysts' forecast dispersion and revisions during speculative bubbles. Our study shows how forecast dispersion changes during a bubble. During bubble rise stage, herding behavior, overconfidence, and salience bias reduce the differences in forecasts. However, during collapse stage, confirmation and salience bias increase the differences. Our study makes a significant contribution by identifying the inversion curve as a key signal of the peak in speculative bubbles.

2. Rise and fall of the dot-com bubble

A financial bubble is usually seen as a price phenomenon, although other factors such as earnings and financial analysts' forecasts can also have an impact on prices. The dot-com (2000) bubble is an

external bubble in which savers trade in costless assets that are not tied to production inputs, according to Bradley et al., (2008). There is no prior or subsequent agreement on its existence and duration. Phillips & Shi (2018) date the recovery to April 2004, while Chen et al., (2022) date it to September 2005. Leone & Medeiros (2014) developed a time-varying autoregressive model of the price-to-dividend ratio of the NASDAQ index, which shows that the dotcom bubble lasted only from December 1998 to July 2001 (DeLong & Magin, 2006)

Rahman & Shamsuddin (2019) show that an excessively high price-earnings ratio, as observed during the formation of a financial bubble, is indicative of an overvalued market driven by optimistic investor sentiment in the G7 index from June 2008 to December 2015. To define a price-asset bubble, we have used a simple, observational method of examining the long-term price-earnings ratio for the STOXX Europe 600 index, as provided by the FACTSET database (Siegel, 2003). The dot-com bubble can be defined by comparing it to the average price earnings ratio (P/E) of the STOXX Europe 600 index of fourteen times the earnings from a pure valuation perspective.

Looking at Figure 1, we can see that the dot-com bubble started to form in 1997 and ended in March 2000. 1998 saw a significant drop due to the Asian crisis. The collapse that took place after March 2000 was made even worse by the attack on the World Trade Center in September 2001. The collapse of the bubble ended in March 2003. Variations in the Price-Earnings Ratio (PER) are associated with the growth in earnings of the Europe STOXX 600 index. During the period of the bubble's inflation, the index witnessed a substantial increase in annual earnings growth, with figures reaching 20% in 1997 and 17% in 1999. However, the earnings growth for 1998, at 12%, was somewhat lower due to the impact of the Asian crisis. This trend of robust growth persisted into 2000, recording a 23% increase. Market participants anticipated the impending collapse, leading to the burst of the internet bubble staring in March 2000, despite the strong growth figures, well before the end of the fiscal year 2002. The subsequent years of the bubble's collapse saw markedly negative earnings growth, with a 23% decline in 2001 and an 11% reduction in 2002. In 2003, investors did not await the full-year earnings announcements, as indicated by the market's rebound in March 2003, even though the 24% increase in earnings growth was only revealed a year later. The years of recovery from the bubble demonstrated significantly higher growth rates, with a 30% increase in 2004 and 26% in 2005, surpassing the figures observed during the bubble's expansion. This increase is due to a base effect.

[INSERT FIGURE 1 & FIGURE 1 bis]

3. Literature review and hypothesis development

This research highlights the intricate relationship between accounting information, earnings estimates, and the dynamics of price bubble formation, offering a unique perspective on the predictive power of

financial reporting in signalling market instabilities. Analysts' earnings forecasts are the key to spotting bubbles in the stock market. Arif & Sul's study of 49 countries between 1987 and 2002 proves it (Arif & Sul 2023). The hypotheses are developed using two streams of literature: earnings forecast dispersion and revision also sometimes considered as forecast error.

3.1 Dispersion of Earnings forecasts and bubble

Bubble, overconfidence and analysts forecast dispersion

Dispersion, defined as the variability in analysts' earnings forecasts, reflects uncertainty, divergence of opinion, and behavioral distortions—all of which are amplified during bubbles.

Boehme et al., (2009), using a sample from NYSE and NASDAQ from 1993 and 2006, show empirically that there exists a relationship between idiosyncratic and price and returns. They interpret their results according to the model of Miller (1977) that shows that when short-sellers face high costs, prices reflect a more optimistic valuation, which effectively deters pessimistic investors from entering the market. Indeed, the greater the disagreement about the value of a stock, the higher the market price relative to the true value of the stock and the lower its future returns, because overconfidence or misreading of others' signals can lead to a higher market price. as speculative bubbles form, optimism drives market prices and fosters greater dispersion in earnings forecasts due to uncertainty and overconfidence in market trends

There is a link between analyst disagreement on earnings forecasts and **stock mispricing**. Sadka and Scherbina (2007) using data primarily from U.S. financial markets from 1983 to 2001, find that stocks with high analyst disagreement tend to be overpriced, but this mispricing corrects over time as uncertainties are resolved. Hence in period of bubble formation, consensus dispersion should decrease. Choi et al., (2006) analyse the negative relationship between analysts' earnings forecast dispersion and price performance from 1986 to 2000 using a world sample of 15217 observations. The dispersion of analysts' earnings forecasts is measured by the variance of earnings forecasts scaled by the stock price at the beginning of the fiscal year. They confirm the existence of a negative association between the dispersion and the magnitude of the earnings response coefficient, (a measure of stock price sensitivity to earning surprise) which is correlated to bubble formation.

Various articles explore the phenomenon of earnings dispersion within the context of the dotcom bubble, analyzing how income disparities emerged and evolved during this period of rapid technological growth and market speculation. In their article, Andrade et al., (2013) establish a link between bubble formation in China and cumulative stock return compute for the 623 constituents of the Shanghai A-share index during the 6-month reference period from 29 November 2006 to 29 May 2007. The mean and median cumulative returns are 204.4% and 187.6% respectively, meaning that the

average stock roughly tripled in price over the 6-month reference period. Of the 623 sample stocks, 567 (91%) have a cumulative return of more than 100%, 275 (44%) have a return of more than 200% and 73 (12%) have a return of more than 300%.

Overconfidence significantly contributes to the increase and fluctuation of forecast dispersion in speculative periods. **Durand, Limkriangkrai, and Fung (2014)**, using **sell-side analyst earnings forecasts from the IBES database spanning 1993–2010**, demonstrate that overconfident analysts often engage in **anti-herding behavior,** where they deviate from the consensus to produce forecasts that they perceive as superior. This tendency, particularly evident in periods of heightened uncertainty, amplifies forecast variability by increasing divergence among analysts. Lee, O'Brien, and Sivaramakrishnan (2008), analyzing 10,424 firm-year observations from U.S. firms (1982–1998), link overconfidence to salience bias, where analysts' overweight visible macroeconomic trends, such as extreme GDP growth. This leads to overly optimistic long-term growth forecasts during economic expansions. Their regression analyses demonstrate that this overconfidence-driven salience bias contributes to divergent interpretations of salient signals, thereby increasing forecast variability. Confirmation bias has significant implications for forecast dispersion. Cai et al. (2024) identify confirmation bias as a key driver of variability in earnings forecasts, showing that analysts rely heavily on entrenched views, particularly in early forecasts when information is limited. Using a dataset of 1,873,989 forecasts from 2000 to 2018, they demonstrate that analysts with strong adherence to prior beliefs exhibit greater forecast errors and variability, highlighting confirmation bias as a primary contributor to dispersion. Similarly, Hirshleifer et al. (2021) introduce the concept of first impression bias, a persistent form of confirmation bias where analysts anchor forecasts on initial evaluations of firms and fail to adjust adequately to new information, even over long periods (up to 36 months). This anchoring creates sustained divergence in forecasts, particularly when initial views differ across analysts. Byun and Roland (2021) provide additional evidence of confirmation bias through their analysis of forecast inconsistency, using a sample of 5,117 analysts across 15,872 firm-year observations (1993–2016). They show that selective incorporation of information leads to deviations from prior forecasts and the consensus, increasing variability among forecasts. Hirshleifer et al. (2019), analyzing over 1.6 million firm-analyst observations from 1984–2017, further show how overconfidence, compounded by heuristic-driven judgments, increases dispersion. Ali and Hirshleifer (2020), which explores how shared analyst coverage of interconnected firms propagates biases across forecasts. During bubbles, these momentum spillovers intensify dispersion because speculative dynamics magnify inconsistencies among analysts.

Overconfidence is the main driver of forecast differences, with confirmation bias anchoring analysts to their initial views, salience bias exaggerating reactions to visible trends, and speculative dynamics adding inconsistencies, all combining to increase forecast variability.

Link between analysts bias, forecast dispersion and price bubble

Even though bubble is mainly an overprice phenomenon due to overconfidence, other biases like salience and confirmation are pivotal in amplifying forecast dispersion during bubbles. These biases influence analysts' interpretations exacerbing divergence. They interact chronologically to drive forecast dispersion, particularly during speculative periods like bubbles. **Salience bias** initiates divergence as analysts overemphasize extreme or highly visible information, such as rapid growth or striking earnings, which dominate speculative narratives during bubbles, creating inconsistent interpretations (**Li, 2023**). This divergence is reinforced by **confirmation bias**, as analysts anchor on prior beliefs and selectively integrate new information, especially in early forecasts where uncertainty is high. This effect is intensified in bubbles, where initial speculative optimism often influences entrenched views (**Cai et al., 2024; Hirshleifer et al., 2021**). Finally, **overconfidence** escalates dispersion as analysts, believing in their superior insights, make exaggerated deviations from consensus or prior forecasts. Bubbles amplify this behavior as heightened market activity and speculative sentiment encourage bold, inconsistent adjustments (**Byun and Roland, 2021; Durand et al., 2014**).

Hirshleifer et al. (2011) demonstrate that limited attention in speculative environments exacerbates salience bias by causing analysts to selectively process striking data while neglecting broader, less visible trends. As a result, variability in forecasts is amplified as analysts respond differently to the same speculative narratives. Lee, O'Brien, and Sivaramakrishnan (2008) examine how forecast variability is significantly influenced by analysts' interpretation and incorporation of salient economic signals. Analyzing 10,424 firm-year observations from 1982 to 1998 for U.S. firms listed on the NYSE, AMEX, and NASDAQ, they find that analysts systematically overweight salient macroeconomic conditions, such as extreme GDP growth or contractions, when forming their forecasts. These findings are particularly relevant to speculative bubbles, where dominant but speculative narratives amplify market sentiment. In such environments, heightened uncertainty intensifies the divergence in analysts' responses to salient data, thereby increasing forecast dispersion. **Alternatively, according to Li (2023)** analysts tend to overemphasize salient past performance, such as unusually high earnings or rapid growth, which skews their forecasts. The study, based on a dataset of 1,157,584 observations of earnings forecasts across Chinese (2002–2022) and U.S. (1980–2022) firms, shows that salience distortion significantly skews analysts' forecasts. This bias leads to divergent interpretations, with some analysts issuing overly optimistic projections while others adopt more conservative estimates. Hence, salience bias contributes directly to forecast dispersion. By demonstrating how salience bias amplifies variability and shifts forecast dispersion in response to changing market conditions, these findings provide strong empirical support for the hypothesis that

earnings forecast dispersion increases and fluctuates during speculative periods such as bubbles. Additionally, Foundational insights from Kahneman and Lovallo (1993) in their work on the "inside view" explain how decision-makers, including analysts, overemphasize specific, salient aspects of firm performance while neglecting broader trends. In bubbles, this anchoring effect results in increased divergence as analysts form forecasts based on speculative narratives. Salience bias causes analysts to focus too much on noticeable economic trends or speculative stories, ignoring the bigger picture, which leads to greater differences in their forecasts, especially during market bubbles.

Taken together, these studies highlight confirmation bias as a key behavioral driver of forecast dispersion, in line with its tendency to magnify variability during periods of heightened uncertainty or speculation.Confirmation bias has significant implications for forecast dispersion. Using a dataset of 1,873,989 forecasts from 2000 to 2018, Cai et al. (2024) identify confirmation bias as a key driver of variability in earnings forecasts, showing that analysts rely heavily on entrenched views, particularly in early forecasts when information is limited. This leads to increased forecast dispersion in the early stages of a bubble as analysts interpret limited or extreme information differently. Similarly, Hirshleifer et al. (2021) introduce the concept of first impression bias, a persistent form of confirmation bias where analysts anchor forecasts on initial evaluations of firms and fail to adjust adequately to new information, even over long periods up to 36 months. This anchoring creates sustained divergence in forecasts, particularly when initial views differ across analysts. Byun and Roland (2021) provide additional evidence of confirmation bias through their analysis of forecast inconsistency, using a sample of 5,117 analysts across 15,872 firm-year observations (1993–2016). They show that selective incorporation of information leads to deviations from prior forecasts and the consensus, increasing variability among forecasts. Li (2023) complements these findings by demonstrating how confirmation bias interacts with salience bias, where analysts emphasize extreme past performance while selectively integrating it through the lens of their entrenched beliefs. Based on a dataset of 1,157,584 observations (2002–2022), Li highlights that this selective processing amplifies divergence, particularly in speculative or uncertain environments. Together, these studies establish confirmation bias as a critical behavioral mechanism that drives forecast dispersion, aligning with its role in amplifying variability during periods of heightened uncertainty or speculation. Li (2023) builds on these results by showing how confirmation bias and salience bias work together, causing analysts to focus on extreme past performance and interpret it in a way that fits their existing beliefs. Based on a dataset of 1,157,584 observations (2002–2022), Li highlights that this selective processing amplifies divergence, particularly in speculative or uncertain environments.

Hirshleifer et al. (2021) demonstrates that analysts' initial perceptions about a firm persist and heavily influence subsequent forecasts. These biases lead to variability, particularly during speculative bubbles, when analysts anchor on differing initial evaluations of firms' performance. The article

highlights a connection between forecast dispersion and returns, as well as a relationship between market bubbles and price returns. If we assume that the negative correlation between dispersion and performance becomes more pronounced during a bubble, it follows that changes in dispersion should be particularly evident during bubble periods.

Hypothesis 1: Earnings forecasts dispersion per year increases during bubble in Europe.

The study by Da and Warachka (2011) using US consensus earnings forecasts from 1983 through 2006, investigates the relationship between long-term and short-term forecasted earnings growth and their predictive power on future returns. They find that disparities between long-term and short-term earnings growth forecasts can serve as robust predictors of future returns and revisions in long-term forecasted earnings growth. The research highlights that stocks with significant disparities (temporal dispersion of growth) between their long-term and short-term forecasts exhibit distinct risk-adjusted return patterns, suggesting that these disparities capture valuable information about future earnings expectations and stock performance.

Bandyopadhyay and Brown (1995), using data from Canadian stocks over the 1983-88 period, delve into how the duration of earnings forecasts impacts their utility in predicting stock prices. They discovered a significant correlation between the forecast horizon and its predictive power, with long-term forecasts being notably more influential in forecasting stock prices than short-term forecasts. They use earnings forecasts as key inputs in predicting future stock prices. The study focuses on the correlation between these earnings forecasts and subsequent stock price movements. It is noted that analysts' forecasts are particularly valuable for long-term predictions. Impact of Forecast Horizon: The article distinguishes between short-term and long-term forecasts, showing that as the forecast horizon increases, the predictive power of earnings forecasts also increases. For short-term predictions, earnings forecasts explain about 30% of stock price variations, while for long-term predictions (three to five years), the forecasts explain about 60% of the variation in stock prices.

Higher Dispersion with Longer Forecast Horizons: The article also indicates that as the horizon for forecasts increases, there is generally more disagreement among analysts (i.e., higher dispersion). This greater dispersion stems from the fact that long-term predictions involve more uncertainty, which naturally leads to a wider range of opinions. Lower Dispersion for Short-Term Predictions: Conversely, for short-term predictions, there tends to be less dispersion as there is more concrete information available (such as company reports, current economic data, etc.), leading to more consensus among analysts. In conclusion, the article of Bandyopadhyay and Brown (1995) suggests that long-term forecasts, which have greater predictive power, are associated with higher dispersion among analysts. This is because the uncertainty and range of assumptions increase with the forecast

horizon. Short-term forecasts are more accurate but show less dispersion. Thus, the predictive power of analysts tends to correlate with the level of dispersion in their forecasts, especially as the forecast horizon extends.

Bradshaw et al.,(2016), using data on US firms from 1997 to 2014, find that the interaction between forecasting difficulty and incentives has a significant impact on the walkdown of earnings forecasts, especially at longer forecast horizons where forecasting difficulty is higher and incentives for accuracy are lower. The study provides insights into how analysts' forecasts change over time in response to evolving information and incentives. Richardson et al.,(1999) study the dynamics of analysts' earnings forecasts over a year leading to annual earnings announcements, on a US sample from 1983 to 1997. They find a trend of initial optimism in forecasts that gradually transitions to pessimism as the announcement date nears. This pattern is more pronounced post-1992, suggesting a strategic adjustment in forecasts, possibly due to evolving market conditions or analysts' incentives. This study provides insights into the temporal changes in analysts' expectations and their implications for investment decisions. Boehme et al., (2009) argues that dispersion of opinion, in the presence of short-sale constraints, leads to systematic security overvaluation because the most optimistic market participants set a stock's price. Thus, dispersion of investor opinion is priced at a premium when short-sale constraints are present. Miller's theory implies that if short-sale constraints are binding, there is a negative correlation between risk-adjusted returns and dispersion of beliefs.

These findings indicate that earnings dispersion should be affected by the forecast horizon measured every quarter in our data.

Hypothesis 1bis: Earnings forecast dispersion decreases with timelag (the shorter the time lag, the smaller the dispersion)

3.2 Forecasts revisions and bubble

Byun and Roland (2021), analyzing a dataset of 5,117 analysts across 15,872 firm-year observations from 1993 to 2016, find that overconfidence is closely linked to forecast inconsistency. Analysts exhibiting higher inconsistency—characterized by significant deviations from prior forecasts or the consensus—are more prone to forecast errors. The study emphasizes that such inconsistency, driven by overconfidence, directly increases forecast dispersion by introducing greater variability into the forecasting landscape.

Loh and Stulz (2018) analyse analysts' absolute forecast errors during bad times, using data from August 1983 to December 2014 on US stocks. They define bad times in several ways. They use prominent crises that occurred during the sample period, such as the October 1987 crash, the Long-Term Capital Management (LTCM) crisis of 1998 and the credit crisis of 2007 to 2009. Surprisingly,

they don't mention the collapse of the dot-com bubble in 2000-2003. The empirical results show that absolute forecast error increase during bad time.

A study by Xue and Xu (2021) shows that lower-quality goodwill can lead to increased optimism and reduced accuracy in analysts' forecasts. Goodwill recognition in the midst of a bull market or due to a merger or acquisition without a founder-chairman or founder-CEO leads to greater inaccuracies in analysts' forecasts. This result implies a positive association between earnings misstatements and the formation of financial bubbles.

Morris and Alam (2012) examine the relationship between earnings forecast errors and the onset and collapse of the dot-com bubble on a US data set over the 1989-2006 period. Forecast accuracy was higher in the pre-bubble period than in the bubble and post-bubble periods. The empirical results of Morris and Alam (2012) suggest that financial analysts were partly responsible for the formation of the Internet stock bubble by being overly optimistic about Internet stocks before the market crash. (Liu & Song, 2001) also support these findings, on a data sample of US internet firms, from 1996 to 2000. Financial analysts as a whole were too optimistic about the Internet stocks before the market crash in April 2000. Rationality tests also suggest that their earnings forecasts before the crash were not entirely rational. However, they significantly lowered their earnings forecasts after the bubble burst. According to these articles, we expect the magnitude of the revision to be affected by the dot-com bubble.

Analysts show confirmation bias by overly relying on information that aligns with their previous beliefs, a tendency that significantly impacts forecast errors. During the dot-com bubble, this bias likely led analysts to maintain overly optimistic earnings expectations for tech firms, mirroring the high-growth sentiment of that period. This reluctance to adjust forecasts as new, less favorable information emerged resulted in larger forecast errors as actual performance increasingly diverged from these inflated expectations.

Zhang, X. F. (2006) explores how sell-side analysts are influenced by behavioral biases, such as overconfidence, especially in uncertain environments, affecting forecast accuracy. He shows that under greater information uncertainty, analysts predicts with bigger forecast errors (positive or negative) and subsequent bigger forecast revisions following good or bad news.

Walther, B. R., & Willis, R. H. (2013) discuss the origin of biases in analysts' earnings forecasts. They find that analysts are the most optimistic and the least accurate when the influence of their feeling (called "sentiment") is stronger than the fundamental of the company studied.

Hypothesis 2: Earnings absolute revision per year is higher during the dot-com bubble in Europe.

A study, conducted by Bryan and Tiras in 2007, investigates the relationship between earnings forecast dispersion and analysts' earnings estimate revisions using an extensive sample covering U.S. firms over a period from 1984 to 2003. When forecast dispersion is high—indicating a greater degree of information asymmetry among analysts—analysts tend to rely less on traditional accounting metrics (like earnings and book value) and more on other types of information, which are potentially non-accounting based. Therefore, dispersion effectively diminishes the alignment of earnings estimates with reported earnings and book values, underscoring a need for broader informational inputs in valuation. From this article we can conclude that dispersion and earning revision are linked together.

In H1bis, we established a link between dispersion and timelag. Since Bryan and Tiras (année) established a link between dispersion and earnings revision, we can expect a link between timelag and earning revision. We can therefore extrapolate the conclusion from H1bis to H2bis.

The horizon of revision has an impact on analyst revisions. In “normal” periods, analysts’ initial estimates are optimistic on average but optimism is greater when estimates are made earlier within the forecast period, and consensus estimates tend to be revised downward over time. La Porta (1996) documents on US data from 1982 to 1991, that analysts revise estimates upward for low-growth firms and downward for high-growth firms. In this study, high expected growth stocks often face downward revisions over time as optimistic early forecasts are tempered by reality, with growth expectations dropping from about 21.7% to 18.4% within a year. Conversely, low-growth stocks frequently experience upward adjustments, moving from an expected 3.1% growth to 4.1%, as initial pessimism is moderated by actual performance. This pattern aligns with the premise that the earnings forecast revision tends to decrease with a shorter time lag, suggesting that the need for revision is greater as the forecast horizon extends.

Bernhardt and Campello (2007) work on a sample from 1989 to 2001 in the US. They observe that forecast accuracy diminishes as analysts make estimates further in advance of the earnings announcement date. For example, analysts who issue forecasts over 60 days prior to announcements overshoot earnings with a higher frequency (61%), compared to those making forecasts within 15 days, who overshoot less frequently (58%). These findings indicate that earnings forecast revisions decrease with shorter time lags.

Beckers et al., (2004) on a universe of European stocks over the 1993-2002 period, analyse the impact of forecast horizon (timelag) on both forecast error (FE)-that is, absolute value of (Forecast earnings - Actual earnings) /Absolut value of actual earnings; and forecast bias (FB)-that is, (Forecast earnings - Actual earnings) /Absolute value of actual earnings. Forecast consensus earnings exceeded subsequent actual numbers by 39 percent two years before the relevant year-end. Although this optimism

decreased as the forecast time horizon shortened, one month before year end, it still averaged 3 percent. The absolute forecast error averaged 76 percent at the two-year horizon, and one month before year-end, it still amounted to 28 percent.

The existing literature identifies a correlation between time-lag and forecast error (estimate actual difference). Therefore, we expect a similar link between time-lag and forecast revision (difference between estimate and post-FYE estimate).

Chen, Z., & Huang, J. J. (2024) investigate how memory and belief biases influence forecast accuracy and timeliness of revisions. Specifically, analysts over-recall distant historical episodes most of the time, when recent events are more useful for forming forecasts than those in the distant past, but under-recall them during crisis times, when history helps to interpret unusual events. They document two potential driving forces behind these distortions: First, analyst memory overweights the importance of past earnings and forecasts. Second, analysts are more likely to selectively forget past positive events.

Hypothesis 2bis: Earnings forecast revision decreases with timelag (the shorter the time lag, the smaller the revision)

4. Sample and research design

4.1 Data sample

The Internet bubble (1997–2003) provides a natural setting to observe analysts' biases, offering an ideal context to study behavioral distortions and collective dynamics affecting analysts' recommendations. Such speculative overheating reveals extreme behaviors (excessive optimism, herding, dispersion of recommendations) that make it possible to test the robustness and quality of financial information under stress conditions. This period also represents a critical moment of transformation in the role of brokers, who were often accused of fueling market irrational exuberance through overly optimistic recommendations. The study therefore contributes to a deeper understanding of analysts' responsibility in equity market crises.

The decision to end the sample with FY 2005 is deliberate and relevant for several reasons. It includes the immediate post-crisis phase (2003–2005), which is essential to observe how analysts adjusted their practices after the bubble burst. It also precedes the effects of major regulatory changes (e.g., MiFID I in Europe) that could otherwise distort the analysis by introducing new structural biases. Finally, it ensures temporal consistency in analyzing the bubble and its consequences, without interference from the 2007–2008 financial crisis.

Unlike the Internet bubble, most other recent financial crises were not purely equity-driven. The subprime crisis of 2007–2008 was fundamentally a real estate and credit market collapse, while the European sovereign debt crisis primarily concerned government bonds and fiscal imbalances. Episodes such as the Asian financial crisis (1997) or the Russian default (1998) were largely currency and debt-related rather than equity-driven. These contexts generated different informational frictions and biases, less suited to isolating analysts' behavior in stock markets. By contrast, equity bubbles (and especially the Internet bubble) are uniquely revealing of analysts' biases because they directly involve exaggerated valuations of listed firms, amplified by collective enthusiasm and speculative dynamics. In Europe, the phenomenon was particularly concentrated in the telecom and technology sectors, making it an especially relevant setting to study how analysts responded to extreme market conditions.

Our sample consists of a panel of analysts' earnings forecasts from December 1994 to March 2006, which we obtain from the *FactSet* database. We use archival data. The sample includes reports on the components of the STOXX 600 index. Therefore, this pooled information does not necessarily represent analysts' written reports but is considered a data feed to *FactSet*.

The literature shows that the broker house environment has a large impact on analyst performance (Liu & Song, 2001; Groysberg et al., 2008; Huang et al., 2022). (Liu & Song, 2001) explore analysts' roles in the 2000 internet stock bubble, showing that analysts were overly optimistic before the crash. However, affiliated analysts (those tied to underwriters) provided more pessimistic earnings forecasts, demonstrating a conflict of interest and the attenuation of optimism to meet managerial expectations. (Groysberg et al., 2004) analyse the performance of star analysts who switch firms, showing a decline in their performance after changing employers. This drop, especially when moving to less capable firms, underscores the influence of brokerage firm capabilities on amplifying or reducing analyst performance. The 2022 study by Huang et al. shows how cross-industry information sharing among analysts at the same brokerage firms leads to better forecast accuracy and higher-quality research. This collaboration especially improves predictions related to industries along the supply chain (Huang et al., 2022).

We focused on analyst reports from the top 100 brokerage firms out of 230 in Factset's database in 2005. For each report, we require analyst estimates at least 1 year ahead of FYE. Since 90% of the STOXX 600 companies have a December 31 fiscal year-end, we assumed a March 31 earnings release date for computational ease. The final sample is of 29719 observations (consensus forecast). Table 1 shows the splits of the sample according to fiscal year, sector and time-lag.

[INSERT TABLE 1]

4.2 Measure of brokers forecast properties

To calculate the earnings estimate dispersion (EED), we used the standard deviation of the estimates as a percentage of the consensus earnings per share at the equity level. We use the consensus calculated from broker estimates less than 45 days old which is the basis of all our data. We then calculated the median and the average for each year for each forecast horizon, which we refer to as "timelag" in our variables definition.

In literature, the calculations that measure the quality of the estimates consider a single estimate (for example the first estimate of the profits of year n+1 around - before and after - the publication of the profits of year n (Barniv et al., 2022), or the estimate 1 year before publication (Hu et al., 2021). To standardise this calculation, the differences between the estimate and the publication are divided by another quantity, e.g. share price or equity value. This gives a quantity comparable to the inverse of a PER (Price-to-Earnings Ratio) or a ROE (Return on Equity). The most quoted reference study (Clement, 1998-1999) measures the quality of analysts' earnings estimates in two steps. There are several areas for improvement in measuring the quality of a sell-side analyst's earnings estimates. First, the time period between the estimate and the earnings release could be more precisely defined. According to some authors it should be 30 days prior to publication, according to others it should be the last day prior to publication (Brown, 2001), which is more than debatable, as the closer you get to the publication date, the less value you get from an earnings forecast. Second, there are a number of aspects to the standardisation of the error of earnings estimates which bring added volatility: In addition to its own source of variability, an analyst's error depends on several factors. The error depends on the company sector: a cyclical stock has higher earnings volatility than a growth or defensive stock. The error also varies by year: recession years are harder to predict than others. Furthermore, the absolute value of EPS: errors (even relative ones) are larger for large EPS than for small ones. The answers given in the literature do not seem to provide a real solution to the sources of variability mentioned above (sector, recession, absolute value of EPS): Dividing by the share price or equity value does not smooth out differences between sectors or economic cycles. Like some authors do, dividing an analyst's error by the average error for a company does not seem to be a better solution to the normality problem. Actually, it only takes one analyst to be very different from the others for the average (denominator) to be very distorted. This statement is confirmed by Cen et al., (2017), whose first observation questions the economic sense of the use of scalars as a normalisation device. Hence, to standardize the estimate error, we decide not to divide by another quantity but to simply calculate the relative difference as follows:

To calculate each broker's forecast quality for each company in each year, we compute one measure: earnings-per-share revision. We use the ex-post earnings per share (n) for each analyst's earnings forecast, computed at the level of the broker. This is measured as the earnings estimate at the end of

March (n+1), i.e. three months after FYE and compared to the initial forecast made at different time lags before (respectively fiftheen, twelves, nine, six and three months before). Since our study focuses on analysts' behavior, we use the estimate at the end of March (n+1) instead of the disclosed earnings (Aubert et al., 2019). As a result, we derive insights into the relative performance of broker houses. Brokerage house characteristics are associated with forecast accuracy (Jacob et al., 1999). A larger error in the forecast is equivalent to a higher value. For example, if we assume an earnings forecast of €5, an ex-post earnings value (3 months after the FYE) of €4.5 corresponds to a deviation of about -10% from the original forecast, which results in an absolute error of 10%. Therefore, any deviation of the forecast from the ex post value, whether above or below the estimate, is penalized by the absolute EPS revision. That is, the absolute value of the difference between the estimate n months before FYE and the estimate 3 months after FYE as a percentage of the estimate n months before FYE. We first collect data at the stock level, then aggregate it as a median consensus for each firm.

$$EPS \text{ n revision} = \left| \frac{EPS \text{ n estimate as of } 31/03/\text{n } + 1}{EPS \text{ n estimate as of timelag}} - 1 \right|$$

Where:

EPS n = Consensus earnings per share for fiscal year n

EPS n estimate as of 31/03/n +1 = earnings estimate 3 months after FYE (fiscal year end)

EPS n estimate as of timelag = earnings estimate 12, 9, 6, 3 or 0 months (timelag) before FYE

Our calculation of the dispersion at stock level, corresponds to the standard error of all broker's forecast expressed as a percentage of the consensus earnings per share.

Earnings Estimate Dispersion (EED) measures how much analysts' earnings forecasts differ. We calculate it by using the standard deviation of the earnings per share (EPS) estimates from brokers, expressed as a percentage of the absolute consensus EPS. The formula for EED is as follows:

$$\text{Dispersion} = EED = Stdev(EPS(i)estimate\ (timelag))/\text{absolute value(EPS(timelag))}$$

Where:

EED: Earnings Estimate Dispersion

i= 1 to 100 brokers

EPS: median earning per share estimate

timelag= 12, 9, 6, 3, or 0 months before financial year end (FYE), and 3 months after financial year end

This method shows how analysts' estimates change over time, helping us understand forecast accuracy and the uncertainty in earnings predictions.

4.3 Models specifications

To test H1 and H2, we estimates the following ordinary least squares (OLS) models

$$EED = \alpha_0 + \alpha_{1k} Sector_k + \alpha_{2h} Timelag_h + \alpha_{3i} Year_i \quad (1)$$

$$EED = \alpha_0 + \alpha_{1k} Sector_k + \alpha_{2h} Timelag_h + \alpha_{3i} Year_i + \alpha_{4hi} Timelag_h{*}Year_i + \alpha 5ki\ Sectork{*}Yeari \quad (2)$$

$$EPSREV = \alpha_0 + \alpha_{1k} Sector_k + \alpha_{2h} Timelag_h + \alpha_{3i} Year_i \quad (3)$$

$$EPSREV = \alpha_0 + \alpha_{1k} Sector_k + \alpha_{2h} Timelag_h + \alpha_{3i} Year_i + \alpha_{4hi} Timelag_h{*}Year_i + \alpha_{5ki} Sector_k{*}Year_i \quad (4)$$

The dependent variables are EED and EPSREV as defined above. The independent variables are SECT that include 10 Sectors from the Factset Database, that is a dummy variable for each sector taking the value 1 and 0. Timelag variable is also a dummy variable taking the value 1 if the earning estimate was issued 12 to 0 months before FYE or 3months after.

Industry effect:

Ali et al., (2023) show that earnings forecast quality depends upon the sector of a company. The forecast are more accurate in industries which are more sensitive to external economic forces (cyclical stocks). Analyst forecasts are useful compared to management forecasts only for firms with high cyclicality (Yan & Chen, 2021). Becker et al., (2004) use sectors as one of the variables to explain

European analysts' earnings forecasts. Espahbodi et al., (2015) include economic sector fixed effects to control for any relationship between information properties and a company's economic sector.

Year effect:

Garcıa-Meca & Sanchez-Ballesta (2005) use the decade as a time indicator variable in their regression to model forecast error. We chose a much refined granularity by using each year from 1994 to 2005 as dummy variables.

Timelag effect:

The timelag variable has been used in various articles. Du et al., (2011) use a method to stratify the forecast horizon into different intervals, and show that the forecast error is not significantly different in respect to timelag. On the contrary, Garcıa-Meca & Sanchez-Ballesta (2006) show that here is a positive relation between forecast error and forecast horizon. Forecast recency is positively related to forecast accuracy (Brown, 1991). O'Brien (1988) shows that the most recent analyst forecast is more accurate than the mean of all outstanding analyst forecasts.

5. Empirical results

Results focusing on the main hypotheses of the article

First, we analyse whether earnings forecast dispersion is positively or negatively correlated with bubble formation and collapse. Second, we carry the same analysis on forecast revisions.

5.1. Dispersion

[INSERT TABLE 2]

Table 2 shows the statistics for earnings dispersion by year and timelag. The columns correspond to the time lags of the forecasts and the lines to the years. The panel 1 indicates that the median forecast dispersion for all years and all quarters is 8,3%. The median dispersion is higher from 2000 to 2003, similar in 1999 and 2004 and smaller from 1994 to 1998 and in 2005. According to timelag, the median dispersion is higher 12m BFYE (12 months before financial year end) and 9m BFYE, close 6m BFYE and 3m BFYE and smaller at FYE and 3m AFYE (after FYE). The panel 2 shows similar figures for average dispersion. Interestingly, the panel 3 that presents the standard deviation of forecast dispersion give a similar trend for the years with standard deviation above 6,7 % in 2001, 2002 and 2003 and close or below the others years. The timelag analysis shows that the standard deviation of

forecast dispersion is slightly higher 3 months BFYE, at FYE and 3 months after FYE and smaller otherwise.

The median dispersion for all years of 9.1% twelve months BFYE reveals dispersed estimates between brokers. Three months after the FYE date, the median dispersion for an EPS is still 7.7%. Despite earnings' disclosure already happened, financial analysts still disagree about a company's earnings. Interestingly, for FY 1999 the median 3m AFYE (8.5%) is higher than 12m BFYE (8,1%). It's also the case for FY 2000. Panel 1 indicates that for all years, the median of dispersion has decreased of 140 bps (-15.4%). The median dispersion forecast is higher 3m AFYE than 12 mBFYE for 1999 of 40 bps (+5%), of 100 bps in 2000 (+11.1%).

Panel 2 indicates that for all years, the average dispersion of estimates between brokers is 10,5% twelve months BFYE. Three months after FYE, the dispersion of an EPS decreases on average by 100 bps (-9.5%). The average dispersion forecast is higher 3m AFYE than 12 m BFYE for 1999 (+0.6%) and 2000 (+1%). Despite earnings' disclosure already happened, financial analysts still disagree about a company's earnings. In 2001, the difference is minus 0.3%.

Panel 3 contains the standards deviation of the dispersion. For all years, the standards deviation of dispersion are higher 3m AFYE (6.9%) than 12m BFYE (6.5%). It corresponds to a decrease of 40 bps, 6% in relative term. Only for FY 1994, 1996 and 2002 the dispersion's standard deviation is higher or equivalent twelve months before the FYE than three months after the FYE.

During the formation of the bubble (1994–1999), the hypothesis that forecast dispersion increases is partly validated: cyclical sectors and long-term forecasts (12 and 9 months before the fiscal year-end) show higher dispersion, indicating rising uncertainty. However, key sectors like Technology and Telecommunications display moderate or below-average dispersion, and overall dispersion remains stable in 1998–1999, which contradicts the idea of a uniform increase. During the bubble's collapse (2000–2003), the hypothesis is mostly confirmed, with peaks in dispersion for Technology and Telecommunications and greater divergence in both short- and long-term forecasts. Nevertheless, some cyclical sectors contribute less to the overall dispersion, and variability declines after the peak in certain years, showing the complex and sector-specific effects of speculative bubbles on analysts' forecasts.

[INSERT TABLE 3]

Table 3 shows the results of model (1) and model (2). The coefficients for all sectors are statistically significant at 1% for both models. The following comments refer to model (2) which includes interactions between variables. The highest dispersion is found in the Telecom sector (12.8%), while the Tech sector is just below ten percent (9.8%). The cyclical sectors, such as Basic Materials and Oil & Gas, have a much higher dispersion (10.8% and 12.2%) than other defensive sectors, such as

Consumer Discretionary (7.3%) and Services (7.0%), where visibility and agreement among brokers is higher.

The coefficients are statistically significant for most of the years for both models and the trends over timelag are comparable. However, the second model is more contrasted before and after the peak. The following comments refer to model (2). Eight of the twelve fiscal year-related parameters show significant changes in earnings dispersion over time. Dispersion is significantly lower before and during the rise of the Dot-com bubble and higher during the collapse. It is interesting to note that 1999 is a key year as the coefficient, while still negative, becomes statistically insignificant. Dispersion increases after the peaking (date to give). None of the timelag parameters are significant in model (2), demonstrating that there is no incremental effect of a particular time lag on the dispersion. To challenge this last result we looked at the interaction parameters between variable year and timelag.

Table 3 presents mixed evidence for H1, with notable differences between the formation and collapse stages of the Dot-com bubble. During the rising stage (1994–1999), dispersion is generally lower, partially contradicting H1. In contrast, during the collapse stage (2000–2003), H1 is largely confirmed, with significant increases in dispersion across sectors, particularly in Telecommunications (see table 5). After the bubble's collapse (2004-2005) overall variability drops, while timelag effects are less pronounced.

[INSERT TABLE 4]

Timelag is punctually significant when taken in interaction with the year variable. The coefficients of timelag-12m and timelag-9m are positive and significant for FY1996. For FY2002, those of timelag-6m and timelag-3m are positive and significant. The coefficients of timelag-12m, timelag-9m and timelag-6m are positive and significant for FY2003. For these years, the dispersion curve is in its « normal » downtrend position and the contribution of timelag-12m and timelag-9m are positive (with significant figures in 1996 and 2003) showing that analysts disagree more when the forecast horizon is longer corresponding to forecast done a long time before FYE. The parameters of shorter time lags are not significantly different to zero (except for 4 cases out of 36). In particular, Timelag-6m, which represents the added dispersion 6 months before FYE, is significantly positive at the end of collapse/start of recovery (2002-2003). Since this six months time lag is still a long time before disclosure, it is a sign of resteepening of the curve almost as much as timelag-12m and timelag-9m.

There is an inversion of the forecasts dispersion curve for FY1998, FY1999 and FY2000. So the inversion started to take place before the collapse. It started as soon as January 1997 when the coefficient become slightly significant at 10% and negative (α455=-1.03%). All other coefficients relating to FY1998 are not significant. The sign reversal concerns earnings forecasts for FY1998, FY1999 and FY2000 which surround the turning point of the bubble. Nevertheless, all these forecasts have been made before the end of March 2000 which is the bubble peak. The impact of timelag-12m is significant and negative for FY1998, FY1999 and FY2000. The timelag-9m is negative and significant for FY1999 and FY2000. The timelag-6m is statistically significant and negative for FY1999. Earnings forecasts for 1998, 1999 and 2000 for longer horizons from the publication date show less variation than those for shorter horizons. The longer the forecast interval, the greater this anomaly. This phenomenon is also observed when we compare the forecasts that were made retrospectively. Therefore, the fact that there is more disagreement during the ex post FYE earnings release than 12 months prior to the FYE release indicates an extreme distrust of corporate earnings releases. We discuss this point in the robustness section.

During the late rising stage of the bubble (FY1998–FY2000), H1bis is not validated due to the inversion of the dispersion curve. Shorter time lags, such as timelag-6m and 3m AFYE, show higher dispersion compared to longer time lags like 12m and 9m BFYE. For example, in FY1999, dispersion for timelag-3m BFYE is 49 basis points higher than timelag-12m BYE, and this difference increases to 154 basis points in FY2000. This inversion is driven by herding behavior, where analysts clustered around overly optimistic long-term forecasts, and by distrust in fundamentals, leading to more disagreement in short-term forecasts.

After the collapse stage (FY2003 onwards), H1bis is validated as the dispersion curve returns to its normal shape. Longer time lags show higher variability, while shorter time lags exhibit reduced dispersion as analysts adjust their forecasts closer to fiscal year-end. For instance, in FY2003, timelag-12m to timelag-6m show significant positive contributions to dispersion, while shorter horizons like timelag-3m follow a downtrend. This reflects analysts incorporating updated information and adapting their predictions as market corrections reduced speculative uncertainty.

[INSERT TABLE 5]

In Europe the dot-com bubble seems to have affected the earnings estimate dispersion of all the sectors before and during the rise of the bubble (1994 to 1999). The Tech sector's dispersion was at its peak during this period (+3.85% to +2.17%), while the telecom sector's earnings dispersion were below average (-4.53% to -2.96%). During collapse though, the telecom sector was caught up by the crisis and was at its peak in 2001: +3.14%.

During collapse, the contributions of the cyclical sectors were more negative (Basic material and Oil&Gas) or much smaller than during rise (Industrials) which shows a similar behavior to the tech sector and makes the Telecom contradictory behavior even more stricking.

Due to their cyclical nature, industrial stocks have always a higher dispersion of their earnings' estimate no matter the stage of the bubble. Some defensive sectors (consumer goods and consumer services) were significantly higher before and during the bubble rise than after. This shows that even sectors which were not directly linked to the dot-com bubble were impacted the same way as the tech sector. The same comment stands for the Health sector which was impacted even more than the tech sector.

Except for the telecom sector, all the sectors' interaction parameters on earning dispersion were higher during rise and smaller during collapse. This is apparently in contradiction with the analysis of the single (no interaction) parameters of the regression, which shows lower dispersion during rise and higher during collapse. But in fact, these interaction parameters are adjustment factors of the "single" (no interaction) parameters of the regression which are high.

By analyzing sectoral and temporal dynamics, we build on the findings of Balakrishnan and Schrand (2020) and Guedj and Bouchaud (2005). During the rising stage, overall dispersion is lower, particularly in speculative sectors like Technology and Telecommunications. Hence H1 is not validated during the bubble rise stage and neither Guedj and Bouchaud's (2005) assertion that dispersion consistently widened. However, increased dispersion for long-term forecasts (timelag-12m and timelag-9m) in cyclical sectors reflects uncertainty in forecasts far from fiscal year-end, aligning with Balakrishnan and Schrand's (2020) emphasis on herding.

During the collapse, dispersion increases significantly, particularly in Technology and Telecommunications, supporting H1 and Guedj and Bouchaud's (2005) findings of persistent dispersion during the bubble's fall. Additionally, variability (bigger dispersion see table 4) in long- and medium-term forecasts (timelag-12m and timelag-6m) reflects amplified forecast errors, consistent with Balakrishnan and Schrand's (2020) insights into overconfidence during volatile periods.

Our results contribute by highlighting sectorial dynamics, with cyclical sectors showing higher dispersion during the formation and speculative sectors (tech and telecom during the dot-com bubble) peaking during the collapse. We also reveal how forecast horizons influence dispersion, with long-term forecasts driving variability most of the time. Finally, the inversion of the dispersion curve before the collapse demonstrates how herding suppressed variability until the bubble's peak. This detailed

perspective bridges existing literature and offers a deeper understanding of how earnings dispersion evolves during speculative bubbles.

According to Balakrishnan and Schrand (2020), the analysts' overoptimism led to systematic forecast errors where actual earnings consistently fell short of projections, in an analysis from 1994 to 2009. Herding behavior amplified earnings dispersion as analysts either exaggerated their bullishness to stand out or stayed overly close to consensus estimates to avoid reputational risks during a volatile period.

According to Guedj and Bouchaud, (2005), earnings dispersion initially widened during the internet bubble, due to divergent predictions influenced by differing levels of optimism, but it narrowed over time as analysts conformed more tightly to an overly optimistic consensus.

During the rise of the bubble, analysts clustered their predictions around inflated market sentiments rather than company fundamentals, leading to greater earnings dispersion due to variations in the level of optimism. During the fall of the bubble, as market conditions deteriorated, earnings dispersion initially persisted but began to narrow over time as analysts adjusted their forecasts closer to the emerging reality.

5.2 Earnings forecast Revision

[INSERT TABLE 6]

Table 6 shows the statistics for earnings revisions by year and timelag. The columns correspond to the time lags of the forecasts and the lines to the years. Panel 1 indicates that the median forecast revision for all years and all quarters is 6.3%. Revisions are slightly above 6.3% in 1999 and 2000, much higher in 1996, 2001 and 2002. Panel 2 shows a more pronounced trend for the average revision with years 1996, 2000, 2001 and 2002 higher than the average forecast revision for all years and all quarters of 9.8%. The figures in panel 3 indicate that the standard deviation of the EPS revision is higher than the standard deviation for all the years for all the quarters of 9.8% in 2000, 2001 and 2002.

Panel 1 shows that the median for all years decreases with the reduction of timelag from 10.4% twelve months BFYE to 2.9% at FYE. The decrease in revision accelerates as we approach FYE with respectively absolute decreases of respectively 130 bps (-12.5%), 190 bps (-20.8%), 210 bps (-29%) and a decrease of 220 bps (-43%). Panel 2 shows a similar trend on the average for all years decrease with a reduction of from 13.2% twelve months BFYE to 5.7% at FYE. There is also an acceleration (respectively minus 100 bps (-7.5%), minus 170 bps (-14%), minus 230 bps (-22%) and minus 250 bps (-30.5%).

Panel 3 indicates the standard deviations of revisions. In 2000, 2001 and 2002, the revision's standard deviation of the years are higher than the revision's standard deviation for all years for all the time lags (9.8%). For all years, the standards deviation of revisions are smaller 3m AFYE (7.5%) than 12m BFYE (10.7%). It corresponds to a decrease of 320 bps, 30% in relative term. The trend is similar for all the years.

Revisions and variability decrease with shorter time lags, confirming H2 during stable periods like FY1996 and FY1999. However, during the collapse stage (2000–2002), higher variability and larger revisions partially contradict H2, showing that forecast refinement is less effective in times of heightened uncertainty. There is a clear difference between stages: the bubble rise stage supports H2, while the collapse stage reveals exceptions due to persistent market volatility, which disrupts forecast accuracy near FYE.

Taken together, these observations do not substantiate our second hypothesis that earnings forecast revisions increase whether the bubble inflates or bursts in Europe. Median revisions at FYE are below the median for all years, in 1997, 1999, 2001, 2002 and 2003. Revisions are equal to the median for all years in 1995 and in 2000 and under in 1994, 1996, 1998, 2004 and 2005. To validate these observations, we conducted a regression analysis with interactions.

[INSERT TABLE 7]

Table 3 shows the results of model (3) and model (4).

First, the coefficients for all sectors are statistically significant at 1% for both models. The following comments refer to model (4).

The cyclical sectors, basic materials and oil and gas, post a much bigger revision (15.8% and 20.6%, respectively) than other more defensive sectors, consumer goods (10.4%) and services (12%) for which earning visibility is higher.

Second, the timelag parameters have a significantly negative contribution for shorter time lags for both models, showing that the closer to publication date the smaller the estimate error.

Third, only two fiscal years (1998 and 2003) have a significant contribution in model (4). Near the top of the bubble rise (FY 1998) the revision are significantly low (-2.9%) because at the time, the new economy being a reality, the earnings estimates were in tune with disclosed earnings. Fiscal year 2003 corresponds to a pivot year when the market touched its lowest point and bounced back (march 2003). Most analysts were surprised by the change of paradigm in the earning growth, hence bigger revisions (2.3%). Most fiscal year parameters are not significant, which lead us to compute interaction parameters to challenge this first result.

Our results partly support H2, as revisions generally decrease and become more accurate closer to the fiscal year-end (FYE), particularly in stable years like FY1996 and FY1999. Shorter time lags show smaller revisions, confirming that forecasts improve as the publication date approaches. Cyclical sectors have larger revisions (e.g., Basic Materials: 15.8%, Oil and Gas: 20.6%), while defensive sectors have smaller revisions (e.g., Consumer Goods: 10.4%, Services: 12%), supporting H2 due to higher visibility in these industries.

-[INSERT TABLE 8]

Table 8 gives the results of year*timelag interaction (for revisions):

The interactions are significant only for the shortest timelag (3 months BFYE in 1997 and at FYE). The revisions are significantly bigger at the middle of the bubble rise (1997,1998) which shows that analysts had underestimated the strength of the bubble and had to change their estimate at the end of the fiscal year. Revisions are also big during collapse (2000, 2001, 2002) showing that the earnings downturn caught the analysts of guard.

[INSERT TABLE 9]

Table 9 presents the results for the interaction between year and sector. Revisions were significantly higher in the telecom and tech sector during the collapse of the bubble. Specially the Telecom sector added a whopping 7.4% and 8.8% contribution to the average revision in 2000-2001. This finding is in line with the study of Yang and Chen (2021).

During the rise of the bubble, the technology sector surprised the analysts, with a positive contribution of 4.3%, 3.9% and 4.1% in 1997-98-99. Surprisingly, the consumer goods sector has a similar behavior with 3.5%, 5.1% and 3.6% respectively.

Due to their cyclical nature, industrial stocks have always higher earnings revisions than average no matter the stage of the bubble. The Oil & Gas sector, on the contrary post exceptionally low revision figures, acting as a peace haven during the turmoil of the dot-com bubble. Health care sector revisions were significantly lower during the rise of the bubble and at the end of the collapse.

6. Discussion

6.1. Discussion of hypothesis 1: Earnings forecasts dispersion per year increases during bubble in Europe.

Earnings forecast dispersion is not always high during speculative bubbles. In the rising bubble stage, dispersion is low in speculative sectors like telecom, due to salience bias and herding. This contradicts Choi et al. (2006). During the collapse, dispersion increases significantly across all sectors, especially speculative ones, as overconfidence and market corrections take over, aligning with Andrade et al. (2013), with sector-specific insights.

Salience bias, confirmation bias, and overconfidence interact to shape earnings forecast dispersion. In the formation phase, analysts focus on visible signals like rapid growth, reducing variability in speculative sectors. Confirmation bias anchors analysts to initial optimistic views, causing delayed adjustments. In the collapse phase, overconfidence amplifies dispersion as analysts deviate from consensus under uncertainty.

Our sectoral analysis shows that speculative sectors, like Technology and Telecommunications, exhibit reduced dispersion during the rise, peaking during the collapse. This challenges Sadka and Scherbina's (2007) view of consistent high dispersion. Cyclical sectors maintain higher dispersion in both stages.

Balakrishnan and Schrand (2020) show that herding reduces dispersion in speculative sectors. We observe this during the bubble rise, especially in Technology and Telecommunications, which challenges Guedj and Bouchaud's (2005) claim that dispersion always increases during a bubble. Increased dispersion in cyclical sectors for long-term forecasts reflects uncertainty. The inversion of the dispersion curve in FY1999 shows analysts clustering around inflated market sentiments before the collapse.

During the collapse, dispersion increases significantly, especially in Technology and Telecommunications, as shown by Guedj and Bouchaud (2005). Variability in long-term forecasts reflects amplified forecast errors, supporting Balakrishnan and Schrand's (2020) findings on overconfidence. Our results highlight that cyclical sectors maintain higher dispersion during the formation, while speculative sectors peak during the collapse. The inversion of the dispersion curve before the collapse shows how herding reduced variability, helping explain changes in earnings dispersion during speculative bubbles.

6.2. Discussion of hypothesis 1bis: Earnings forecast dispersion decreases with timelag (the shorter the time lag, the smaller the dispersion)

Our results challenge Bandyopadhyay and Brown's (1995) assumption that dispersion is always higher for longer forecast horizons. In the bubble rise stage (FY1998–FY2000), we observe a reversal of the

dispersion curve, with longer horizons (12m, 9m) showing lower dispersion due to herding and speculative optimism. This contrasts with the usual pattern, where longer horizons typically have higher dispersion. In the collapse stage, after 2000, the usual pattern returns, with longer horizons showing more dispersion as uncertainty increases. Additionally, higher variability in short-term forecasts (e.g., 3m AFYE) during the rise reflects growing skepticism towards corporate earnings as announcements approach, aligning with Richardson et al. (1999).

Our findings also contradict Da and Warachka (2011), who suggest that longer forecast horizons always lead to greater dispersion. We show that during the bubble rise (FY1998–FY2000), longer horizons have lower dispersion due to herding behavior, which contradicts their assumption.

However, for periods like FY1996 and FY2003, our results confirm the usual relationship, with longer horizons showing higher dispersion. This is consistent with Bandyopadhyay and Brown (1995), who argue that longer forecasts involve greater uncertainty, and with Bradshaw et al. (2016), who note that forecasting difficulty increases as the horizon lengthens.

We also identify the "dispersion curve inversion" during the bubble collapse, which blurs the usual price-earnings/dispersion relationship. The timing of this increase varies by sector, with Telecom showing the earliest inversion starting in 1997, compared to 1999 for the Europe Stoxx index. The decrease in dispersion during bubble formation and the increase during the collapse confirm the existence of this link in Europe, similar to the US stock market, as shown by Li et al. (2016). By analyzing dispersion across four stages (before bubble, rise, collapse, and recovery), our study provides a broader perspective and introduces a new contribution: we are the first to mention the inversion of the dispersion curve at the peak of the bubble.

6.3 Discussion of hypothesis 2: Earnings forecasts revision per year increases during bubble.

Our study shows that earnings revisions were significantly lower in FY1998 (bubble rise) and significantly larger in FY2003 (collapse), contradicting Hypothesis 2. Unlike earnings dispersion, time lag analysis does not show any curve inversion. Analysts were expected to be closer to their final earnings estimate as time progressed each year. This agrees partially with previous studies. Loh and Stulz (2018) found increased estimate errors during difficult times, but they did not study the dot-com crisis. Morris and Alam (2012) studied the dot-com bubble but did not separate the rising and collapsing stages. Our results provide a more detailed view of the antagonism between these two stages.

Our findings confirm that shorter time lags lead to smaller revisions, reflecting improved accuracy as forecasts approach the fiscal year-end (FYE). Timelag parameters show a negative contribution, with

smaller revisions in defensive sectors (e.g., Consumer Goods) compared to cyclical sectors (e.g., Basic Materials). This aligns with Loh and Stulz (2018) and Byun and Roland (2021), who noted that shorter time lags reduce overconfidence-driven inconsistencies.

In stable years like FY1996 and FY1999, revisions decreased consistently with shorter time lags. This aligns with Morris and Alam (2012), who found higher forecast accuracy in pre-bubble periods. In FY1998, revisions were very low due to analysts following the "new economy" narrative, not improved accuracy. Analysts relied on unrealistic expectations, matching findings from Morris and Alam (2012) and Liu and Song (2001). Xue and Xu (2021) also found that confirmation bias led analysts to stick to inflated views.

In FY2003, revisions were larger as analysts struggled to adjust to the unexpected market recovery. Forecasts closer to FYE did not improve accuracy due to market uncertainty. This aligns with Loh and Stulz (2018) and Byun and Roland (2021), who found that forecast errors increase during crises and that overconfidence amplifies inconsistency in volatile periods.

6.4 Discussion of hypothesis 2 bis: Earnings forecasts revision decreases with timelag (the shorter the time lag the smaller the revision).

Our results mostly support H2bis, showing that shorter time lags lead to smaller revisions. As La Porta (1996) and Bernhardt and Campello (2007) found, longer-term forecasts tend to have more errors, and revisions get smaller as forecasts approach the fiscal year-end (FYE). We see that revisions decrease as the timelag shortens, which agrees with Beckers et al. (2004), who showed that forecast errors drop closer to FYE, confirming the usual pattern.

However, during volatile periods, especially in the bubble rise and collapse stages (e.g., FY1997, FY1998, and FY2000-2002), our results show larger revisions. This contradicts Malevergne & Sami (2018), who argue that analysts face more difficulties in uncertain times. In these stages, analysts had to revise their forecasts more sharply, showing that the relationship between time lag and revision size weakens during periods of high uncertainty.

Also, our findings for FY1998 and FY2003 support Byun and Roland (2021), who explain that overconfidence and speculation can cause larger revisions even when time lags are short. During the bubble rise stage, analysts were overly optimistic, leading to smaller revisions. In the collapse stage, analysts struggled to adjust to the unexpected market recovery, resulting in larger revisions. Hence, H2bis does not fully apply during periods of strong behavioral biases and market instability.

6.5 Contributions

Our study contributes to the literature by highlighting how analysts' behavior and forecast dispersion differ during the formation and collapse of speculative bubbles. In the formation phase, analysts focus on visible signals like rapid growth, reducing forecast variability in speculative sectors like Technology and Telecommunications. This herding behavior, along with confirmation bias, anchors analysts to initial optimistic views, leading to smaller revisions. In contrast, during the collapse phase, overconfidence drives larger deviations from consensus, increasing dispersion under heightened uncertainty. Our findings align with Durand et al. (2014) and Byun and Roland (2021), showing how overconfidence amplifies dispersion during the bubble's collapse.

Additionally, our study introduces the concept of the inversion curve as a key signal of the bubble's peak. This curve appears when forecast dispersion decreases in the bubble rise, contrary to the usual increase expected with longer time horizons. In the dot-com bubble (e.g., FY1998), analysts clustered around inflated market sentiments, reducing dispersion due to herding behavior. This finding is a novel contribution, as existing literature like Shiller (2000) and Hirshleifer et al. (2011) does not mention this pattern, highlighting its value as an early indicator of the bubble’s peak.

Our results also add to the literature on the relationship between forecast dispersion and stock returns. During the bubble rise (e.g., FY1997–1998), higher dispersion and larger revisions reflect speculative optimism, confirming Diether, Malloy, and Scherbina (2002) and Cen et al. (2017). However, our study goes further, showing that herding and confirmation bias lead to sharper adjustments in forecasts due to market mispricing, not uncertainty. This insight deepens the understanding of how dispersion, driven by behavioral biases, affects stock returns during speculative bubbles.

From a methodological standpoint, the article innovates by combining the analysis of inter-analyst dispersion with that of forecast revisions on an extensive panel of unprocessed archival data covering the constituents of the STOXX 600 between 1994 and 2005. By structuring the data across multiple forecast horizons, the article introduces a dynamic, multi-level perspective on forecasting behavior, enabling the detection of early behavioral signals of speculative bubbles: most notably the inversion of the dispersion curve at the peak. The central contribution lies precisely in this documented inversion, observed in the highly specific context of the Internet bubble, a major equity bubble where such dynamics became visible. By focusing on analysts’ forecasts rather than firm-level fundamentals, the study provides a narrower and more targeted approach to detecting bubbles

7 Robustness Check

Robustness check 1: triple interactions

We see that effect of sector is huge concerning dispersion. To assess the performance of each sector concerning time lag and fiscal year, we developed a regression model solely incorporating the triple interaction of these variables.

Equation *[a] :* $EED_j = \alpha_0 + \alpha_{1khi} Sector_k * Timelag_h * Year_i$ *Model (5)*

[INSERT TABLE 10]

All the interaction coefficients exhibit significance, with the majority attaining significance levels of 1%. Only two cyclical sectors, Basic Materials and Oil and Gas, did not experience a reversal in their dispersion curves. Apart from these, all other sectors underwent a dispersion curve inversion during the period spanning from 1994 to 2005, albeit at slightly staggered times. Consumer goods and financial services were the earliest, to undergo a dispersion curve inversion observed as early as 1996 and 1997, respectively. The telecom sector also began its inversion as early as 1997 and exhibited the highest dispersion among all sectors, reaching 23.9% for fiscal year 2001, six months before disclosure. The defensive sector of utilities initiated its inversion in 1998, a year ahead of the overall index average. The healthcare sector experienced its inversion on an even longer time span from 1997 to 2002. Surprisingly, the Technology sector in Europe demonstrated the shortest inversion period: only fiscal years 1999 and 2000 were truly inverted, with 2001 showing fewer convincing signs. This analysis indicates that in Europe, the earnings dispersion phenomenon was concentrated largely in the telecom sector, which not only displayed the highest dispersion but also had the longest inversion period of five fiscal years. Hence, Our results provide both confirmation and contradiction to Hypotheses H1 and H1bis. For H1, which suggests increased forecast dispersion during speculative periods, we confirm this in sectors like Telecom and Healthcare, where dispersion was high and persisted longer during the bubble years. However, Basic Materials and Oil and Gas, two cyclical sectors, did not show this trend, indicating stability in their forecast dispersion. As for H1bis, which expects forecast dispersion to decrease as the forecast time shortens, we find that it holds true for stable sectors like Utilities and Consumer Goods, where dispersion decreased closer to the fiscal year-end. However, in speculative sectors like Telecom, dispersion remained high, challenging the idea that shorter time lags always lead to smaller revisions in these uncertain periods.

Robustness check 2: Regressions with interaction of year*sector, or interaction year*timelag

[INSERT TABLE 7]

The parameters of the regressions with interaction of year*sector, or interaction year*timelag display value which are very comparable in magnitude and signs to the parameters of the regression including all interactions. This finding shows that the results of the all interaction regression are robust.

Robustness check 3: Inversion in revision bias versus noise

[INSERT FIGURE 2]

The 'anomaly' concerning the 'inversion curve' concerning the consensus may be interpreted as bias or noise. In order to disentangle both interpretations, we compute the dispersion of revisions. According to Graaf (2023), analysts' behavior is deeply influence by the succession of proactive and reactive periods. Stickel (1989) shows that analysts revise their annual earnings forecasts more frequently after earnings announcement than before. Analysts make optimistic forecasts at the start of the year and then 'walk down' their estimates to a level the firm is likely to beat by the end of the year (Richardson et al., 1999). Whallmeier, M. (2005) that the dispersion of forecast errors decreases as the forecast horizon shortens. Our findings corroborate this generally, yet an exception arises during the dot-com bubble period. We observe also a curve inversion akin to that seen with earnings forecast dispersion, which elucidates the following phenomenon: amidst the uncertainty of the dot-com bubble, financial analysts' confidence in disclosed earnings waned. Consequently, as the disclosure date neared, their earnings revisions diverged—some increasing their estimates, while others decreased them. This divergence in revisions is quantified by the standard deviation of quarter-to-quarter earnings estimate revisions, as depicted in the graph. This divergence is the principal factor in the amplification of earnings estimate revisions and the inversion of the dispersion curve during the dot-com bubble period. This analysis, which explains the inversion of the curve, illustrates analysts' mistrust of published results. Prior studies (Lang & Lundholm, 1996; Miller (2002) and Kothari et al., (2009), have shown that firms tend to delay the disclosure of bad news and that withholding of news leads to greater dispersion in analysts' forecasts. Accordingly, Ali et al., (2019) predict that firms with higher dispersion in analysts' earnings forecasts are more likely to experience poor earnings in the subsequent quarter, and find evidence consistent with this prediction. These later findings come to explain why we find that in unstable times (bubble collapse) earning dispersion is greater: managers tend to withhold information, creating more divergence between analysts who search for information and others, hence creating a higher dispersion in quarter-to-quarter earnings revision hence creating higher earnings estimate dispersion closer to earnings disclosure date, hence demonstrating the curve inversion.

Robustness check 4: ANOVA model with interaction of year*sector and year*timelag

The ANOVA model displayed very similar parameters to the linear regression.

8 Conclusion

This article explores sell-side analysts' behavior during financial bubbles, focusing on their earnings forecasts as predictors of bubble dynamics. The study emphasizes the dot-com bubble in Europe, characterized by speculative optimism and market exuberance, particularly in the telecom sector. Analysts' behavioral biases, such as overconfidence, confirmation bias, and salience bias, played significant roles in shaping forecast dispersion and revisions, which serve as key indicators of market instability. Empirical analysis, using forecasts from European companies in the STOXX 600 index, confirms that forecast revisions decrease as time lags shorten in stable periods but become erratic during volatile phases. This nuanced understanding enhances predictive models for bubbles, underscoring the importance of analyst behavior in identifying and mitigating speculative market risks.

This study makes two key methodological contributions. First, it uses quarterly forecasts of fiscal year-end (FYE) earnings to study forecast revisions and dispersion, showing how forecast timing affects analysts' predictions during speculative bubbles. Second, while many studies focus on the dot-com bubble in the U.S., our research examines the bubble's dynamics in Europe. Beckers et al. (2004) is the only previous study in this context, making our work an important addition to the European analysis of analysts' behavior during this period.

In addition to these methodological contributions, the study offers two main empirical contributions. The first examines how analysts' behavior and forecast dispersion change during the formation and collapse of speculative bubbles. During the bubble rise stage, herding and speculative optimism reduce forecast variability, especially in sectors like Technology and Telecommunications. Confirmation bias further reduces variability. During the collapse stage, overconfidence increases dispersion as analysts struggle to adjust their forecasts. The second empirical contribution introduces the dispersion curve inversion as an early signal of a bubble's peak. At the end of the bubble rise and during its collapse, forecast dispersion increases instead of decreasing with time, serving as an early warning of misalignment before the bubble bursts.

Lastly, the study provides a minor indirect contribution to the literature on forecast dispersion and stock returns. We show that larger revisions and higher dispersion during the rise reflect speculative optimism. This builds on the work of Diether, Malloy, and Scherbina (2002), and Cen et al. (2017), but emphasizes that the larger revisions are driven by market mispricing, not

uncertainty. This insight enhances our understanding of how behavioral biases affect stock returns during speculative bubbles.

The study identifies a dispersion curve inversion during bubble peaks, highlighting smaller variability at long forecast horizons, signaling misaligned market sentiments. We also introduce the inversion curve, which signals the peak of speculative bubbles. During the rise, forecast dispersion decreases due to herding behavior, as seen in the dot-com bubble (FY1998). However, as the bubble peaked and collapsed, dispersion surged, reflecting amplified uncertainty and inconsistent adjustments to market realities. These stages revealed the interplay of biases, with overconfidence driving inflated expectations during the rise, while confirmation bias and salience bias intensified variability during the collapse.

If confirmed, the inversion curve could serve as an early warning signal for the peak of a speculative bubble. Regulatory bodies, such as stock market regulators and banks, could monitor this signal to detect market imbalances. Identifying the inversion curve would allow regulators to take steps to reduce risks before a collapse, improving market stability. Proactive actions like tightening liquidity, adjusting interest rates, or imposing trading restrictions could help curb excessive risk-taking and prevent a market crash.

Although our results focus on a single episode, the dot-com bubble, it is important to note that this was a purely endogenous equity market crisis. Analysts' biases directly influenced their earnings estimates, which in turn affected equity valuations and amplified the bubble's dynamics. This distinguishes it fundamentally from exogenous crises such as the 2008 subprime crisis or the COVID-19 market shock, where the trigger lay outside the equity market and therefore cannot be used as a starting point to study the causal link between analyst behavior and equity valuation. To strengthen the generalization of our findings, future research should investigate whether indicators like the dispersion curve inversion, and the behavioral mechanisms driving it, also appear in other endogenous equity-driven crises. Such comparative analysis would deepen our understanding of how forecast dispersion and revision patterns vary across crisis types and improve our ability to detect and respond to emerging speculative bubbles.

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FIGURES AND TABLES

FIGURE 1: STOXX Europe 600 index PER history

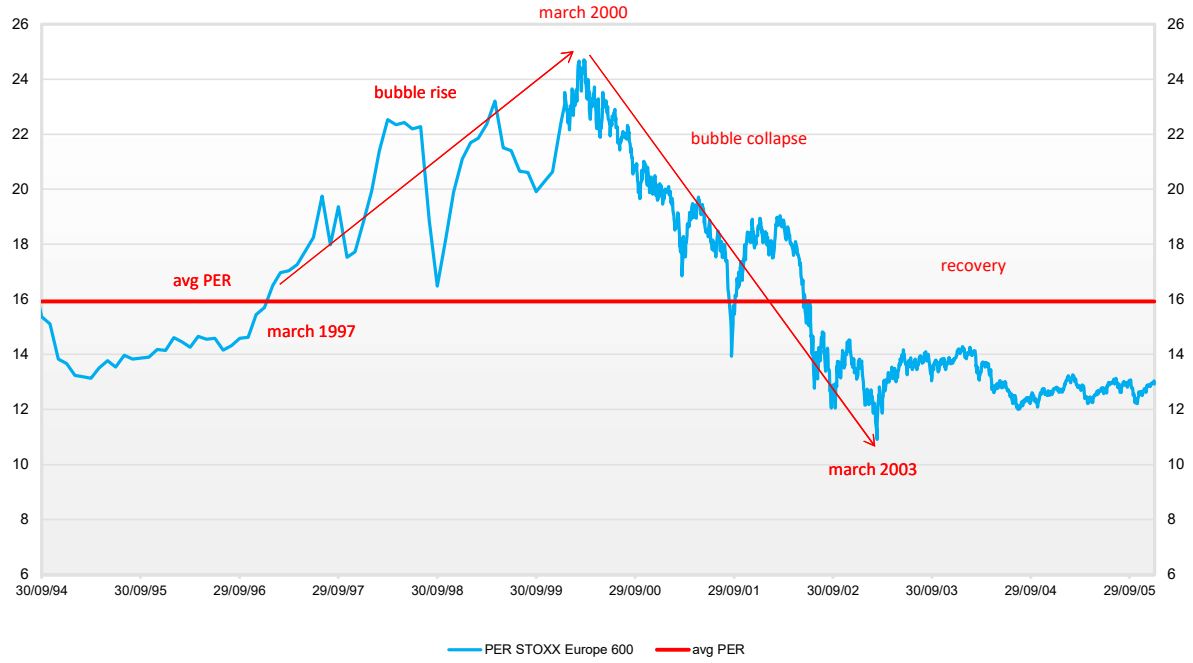

FIGURE 1 bis: STOXX Europe 600 earnings growth

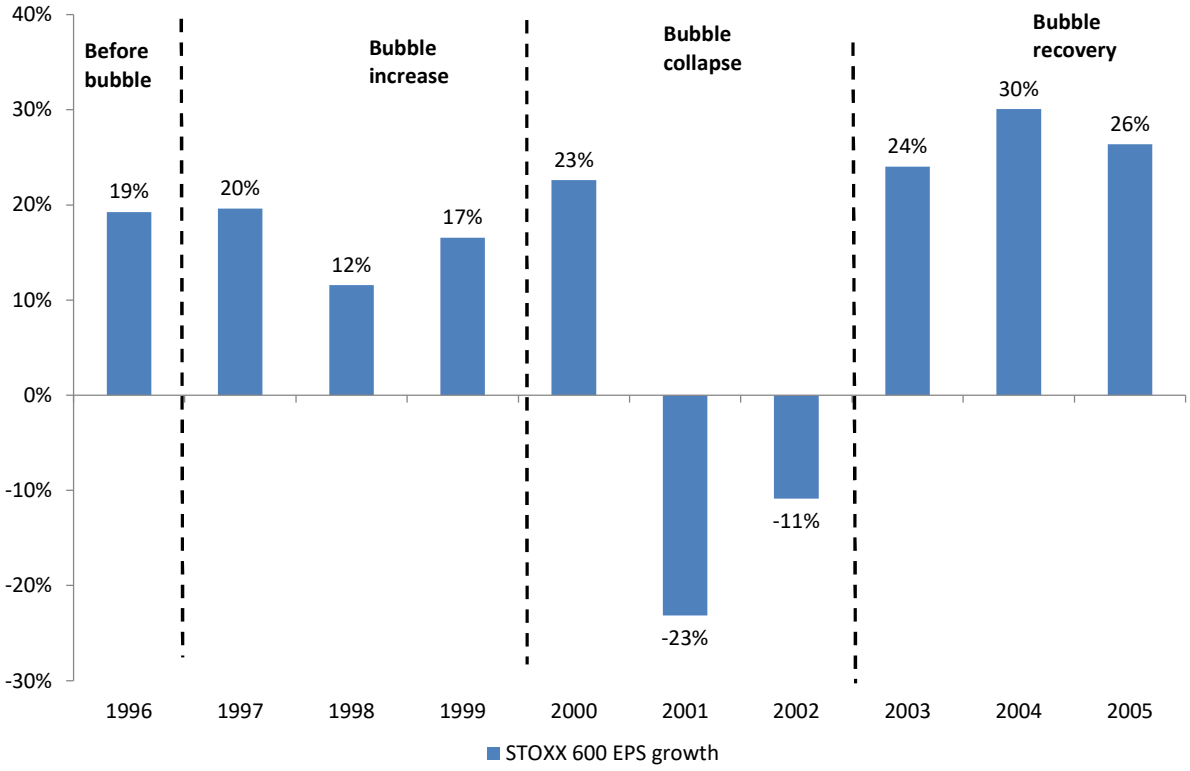
40%
30%
20%
10%
0%
-10%
-20%
-30%
Before bubble
Bubble increase
Bubble collapse
Bubble recovery
19%
20%
12%
17%
23%
-23%
-11%
24%
30%
26%
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
STOXX 600 EPS growth

FIGURE 2: Quarter to quarter Revision standard deviation

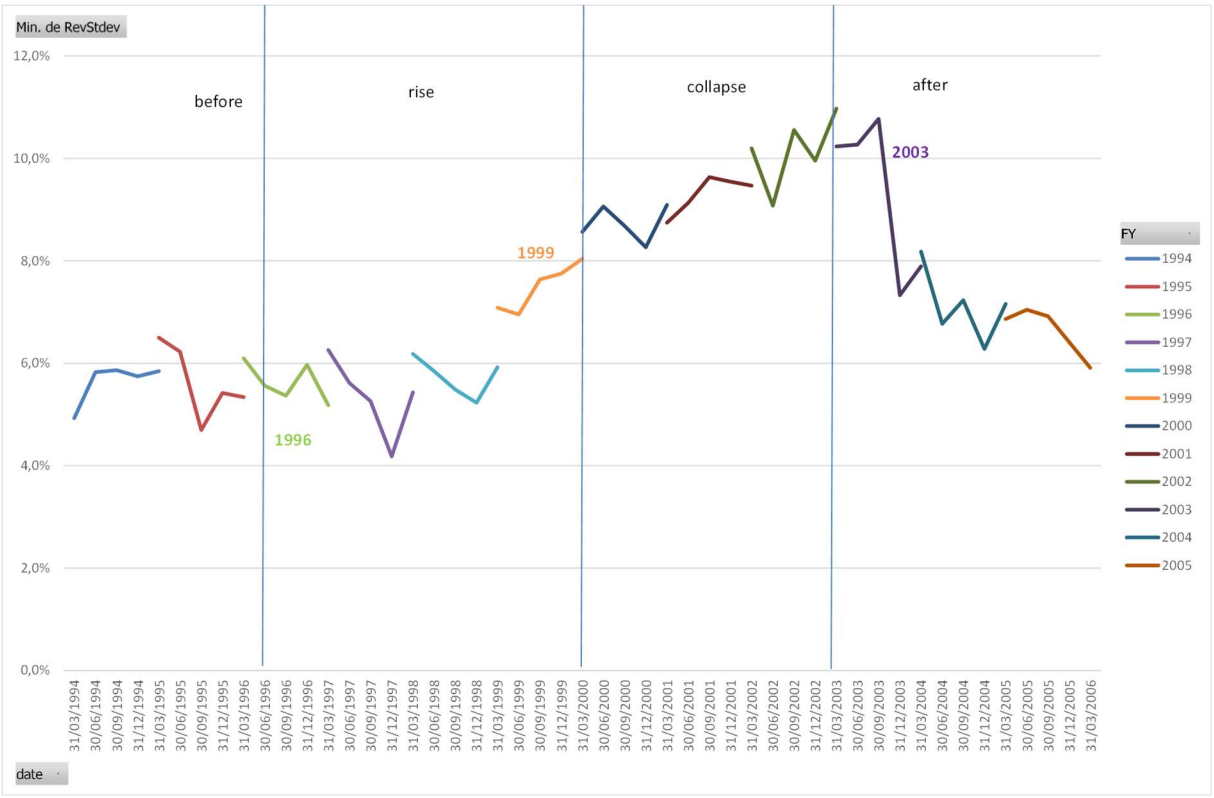

TABLE 1: Sample split

Panel : sample by FY	Number of FY	% of total
1994	1 148	3.85%
1995	1 775	5.96%
1996	1 939	6.51%
1997	2 305	7.74%
1998	2 540	8.53%
1999	2 703	9.07%
2000	2 819	9.46%
2001	2 696	9.05%
2002	2 672	8.97%
2003	2 834	9.51%
2004	3 122	10.48%
2005	3 233	10.85%
Total	29 786	100.00%

Panel sample by sector

Panel : sample by sector	Number of sector	% of total
Basic Materials	1 987	6.67%
Consumer Goods	4 198	14.09%
Consumer Services	4 622	15.52%
Financials	7 195	24.16%
Health Care	1 629	5.47%
Industrials	5 877	19.73%
Oil & Gas	904	3.03%
Technology	1 090	3.66%
Telecommunications	728	2.44%
Utilities	1 556	5.22%
Total	29 786	100.00%

Panel sample by timelag-h

Panel : sample by timelag	Number of timelag	% of total
12m BFYE	4 866	16.34%
9m BFYE	4 932	16.56%
6m BFYE	4 944	16.60%
3m BFYE	4 971	16.69%
FYE	5 064	17.00%
3m AFYE	5 009	16.82%
Total	29 786	100.00%

TABLE 2: EPS forecasts dispersion statistics

Panel 1: Median EPS forecast dispersion

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	3m AFYE	All quarters
1994	7,7%	8,4%	8,0%	8,0%	7,4%	6,7%	7,6%
1995	8,3%	7,9%	7,0%	6,8%	6,8%	6,4%	7,3%
1996	8,1%	7,8%	6,7%	6,5%	5,8%	5,2%	6,5%
1997	7,5%	7,1%	6,3%	6,2%	6,1%	5,9%	6,6%
1998	7,4%	7,2%	6,9%	6,7%	6,5%	6,6%	6,9%
1999	8,1%	8,0%	8,0%	8,3%	8,3%	8,5%	8,2%
2000	9,0%	9,6%	9,6%	10,3%	9,8%	10,0%	9,7%
2001	10,0%	10,6%	10,3%	10,4%	9,5%	9,3%	10,1%
2002	11,3%	11,0%	10,4%	11,2%	10,0%	9,0%	10,6%
2003	10,8%	10,2%	10,3%	9,5%	8,4%	8,0%	9,6%
2004	9,7%	8,8%	9,0%	8,0%	7,3%	7,8%	8,4%
2005	8,4%	7,9%	7,2%	7,4%	6,9%	7,0%	7,4%
All years	9,1%	8,9%	8,4%	8,3%	7,7%	7,7%	8,3%

Panel 2: Average EPS forecast dispersion

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	3m AFYE	All quarters
1994	9,5%	9,9%	9,4%	9,8%	9,2%	8,7%	9,3%
1995	10,1%	10,0%	9,6%	9,0%	9,0%	8,7%	9,4%
1996	10,2%	9,7%	8,2%	8,6%	8,1%	7,5%	8,7%
1997	9,5%	8,9%	8,1%	8,2%	8,3%	8,4%	8,6%
1998	8,8%	8,7%	8,6%	8,3%	8,6%	8,7%	8,6%
1999	9,5%	9,8%	9,6%	9,5%	10,1%	10,1%	9,8%
2000	10,3%	11,0%	11,1%	11,3%	11,2%	11,3%	11,0%
2001	11,3%	11,8%	11,7%	11,8%	11,1%	11,0%	11,5%
2002	12,5%	12,4%	12,0%	12,3%	11,3%	10,6%	11,9%
2003	12,2%	12,0%	11,8%	11,2%	10,3%	10,0%	11,3%
2004	11,0%	10,6%	10,4%	9,6%	9,4%	9,3%	10,0%
2005	9,7%	9,6%	9,0%	9,3%	8,7%	8,7%	9,2%
All years	10,5%	10,5%	10,1%	10,0%	9,7%	9,5%	10,0%

Panel 3: EPS forecast dispersion standard deviation

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	3m AFYE	All quarters
1994	7,0%	6,4%	6,6%	6,9%	6,9%	6,9%	6,8%
1995	6,5%	6,8%	6,8%	6,8%	6,8%	6,8%	6,7%
1996	6,8%	6,8%	6,0%	6,8%	6,4%	6,6%	6,6%
1997	6,4%	6,1%	6,2%	6,2%	6,7%	6,6%	6,4%
1998	5,6%	5,5%	5,9%	5,9%	6,5%	6,7%	6,0%
1999	6,0%	6,4%	6,4%	6,2%	7,1%	6,7%	6,5%
2000	6,1%	6,5%	6,6%	6,6%	6,8%	7,1%	6,6%
2001	6,1%	6,3%	6,8%	7,3%	7,3%	7,3%	6,9%
2002	6,9%	7,3%	7,4%	7,3%	7,3%	6,9%	7,2%
2003	6,8%	7,1%	7,1%	7,1%	7,0%	7,3%	7,1%
2004	6,4%	6,5%	6,4%	6,6%	7,0%	6,8%	6,6%
2005	6,1%	6,4%	6,2%	6,4%	6,2%	6,4%	6,3%
All years	6,5%	6,6%	6,7%	6,8%	6,9%	6,9%	6,7%

TABLE 3: Effects of sectors, timelag and years on dispersion

	Model (1)			**Model (2)**		
Variables	Value without interaction	Standard error	T statistic	Value with interactions	Standard error	T statistic
Intercept	0,00%		0	0,00%		0
sect-Basic Materials	10,64% ***	0,20%	52,79	10,83% ***	0,61%	17,7
sect-Consumer Goods	7,22% ***	0,17%	41,81	7,32% ***	0,47%	15,43
sect-Consumer Services	7,05% ***	0,17%	41,88	6,98% ***	0,44%	15,99
sect-Financials	9,4% ***	0,16%	59,36	9,39% ***	0,38%	24,59
sect-Health Care	7,58% ***	0,21%	35,45	7,94% ***	0,68%	11,65
sect-Industrials	8,72% ***	0,16%	53,47	7,50% ***	0,41%	18,24
sect-Oil & Gas	9,73% ***	0,26%	37,79	12,20% ***	0,84%	14,59
sect-Technology	9,46% ***	0,24%	39,12	9,85% ***	0,81%	12,2
sect-Telecommunications	11,28% ***	0,28%	40,80	12,81% ***	0,84%	15,34
sect-Utilities	8,66% ***	0,22%	40,18	10,13% ***	0,66%	15,45
timelag-12m BFYE	0,95% ***	0,13%	7,18	0,92%	0,68%	1,34
timelag-9m BFYE	0,92% ***	0,13%	7,00	0,66%	0,68%	0,96
timelag-6m BFYE	0,55% ***	0,13%	4,17	-0,05%	0,68%	-0,07
timelag-3m BFYE	0,47% ***	0,13%	3,56	0,30%	0,68%	0,44
timelag-FYE	0,16%	0,13%	1,25	-0,16%	0,68%	-0,24
timelag-3m AFYE	0%	0,00%		0,00%	0,00%	0
1994	0,47% **	0,23%	2,08	-2,19% **	1,07%	-2,05
1995	0,32%	0,19%	1,64	-2,88% ***	0,93%	-3,11
1996	-0,38% **	0,19%	-2,00	-5,02% ***	0,90%	-5,55
1997	-0,52% ***	0,18%	-2,90	-2,30% **	0,90%	-2,55
1998	-0,48% ***	0,17%	-2,75	-2,75% ***	0,87%	-3,17
1999	0,68% ***	0,17%	3,99	-0,62%	0,84%	-0,75
2000	1,89% ***	0,17%	11,23	1,92% **	0,82%	2,33
2001	2,36% ***	0,17%	13,85	2,04% **	0,82%	2,48
2002	2,79% ***	0,17%	16,28	2,35% ***	0,81%	2,89
2003	2,17% ***	0,17%	12,87	1,16%	0,80%	1,44

2004	0,9% ***	0,16%	5,47	-0,40%	0,78%	-0,51
2005	0%	0,00%		0,00%	0,00%	0
Number of observations	29786			29 786		
R2	0.708			0,714		

Note : This table presents the regression results of equation [1] and [2] for respectively the impact of sector α_{1k}, timelag α_{2h} and year α_{3i}. The dependent variable is dispersion (EDDJ). See Appendix X for variables definition. The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 4 : Conditional effect of year and timelag on dispersion

Interaction year*timelag

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	3m AFYE
1994	0,12%	0,52%	0,64%	0,77%	0,54%	0%
1995	0,29%	0,33%	0,52%	-0,32%	0,27%	0%
1996	1,51% **	1,2% *	0,39%	0,55%	0,62%	0%
1997	0,08%	-0,41%	-0,53%	-0,76%	-0,04%	0%
1998	-1,03% *	-0,93%	-0,41%	-0,97%	-0,13%	0%
1999	-1,54% ***	-1,08% *	-0,73%	-1,05% *	0,08%	0%
2000	-2,13% ***	-1,26% **	-0,55%	-0,59%	-0,14%	0%
2001	-0,82%	-0,08%	0,57%	0,32%	0,15%	0%
2002	0,73%	0,81%	1,1% *	1,12% *	0,7%	0%
2003	1,16% **	1,07% *	1,57% ***	0,68%	0,31%	0%
2004	0,6%	0,34%	0,73%	-0,33%	0%	0%
2005	0%	0%	0%	0%	0%	0%

This table presents the regression results of [2] for the conditional/marginal interaction effect α_{4hi} The dependant variable is dispersion (EDD_J). The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 5: Conditionnal effect of year and sector on dispersion

Model parameters (Variable Dispersion): Dispersion=f(sector,year,timelag)

Interaction year*sector

Year	Basic Materials	Oil & Gas	Industrials	Consumer Goods	Consumer Services	Financials	Health Care	Technology	Telecommunications	Utilities
1994	0,81%	-2,24%	4,46% ***	1,61%	2,54% **	3,33% ***	1,47%	3,85% **	-3,93% **	0%
1995	1,09%	-2,25% *	4,71% ***	3,27% ***	2,41% **	4,41% ***	3,63% ***	3,43% **	-4,53% ***	0%
1996	2,8% ***	-0,9%	5,7% ***	5% ***	4,55% ***	3,97% ***	4,32% ***	3,67% ***	-2,96% **	0%
1997	1,94% *	-2,35% *	2,83% ***	2,64% ***	2,12% **	2,39% ***	2,53% **	2,96% **	-2,56% *	0%
1998	2,43% **	-1,46%	3,28% ***	3,74% ***	3,24% ***	3,46% ***	2,8% **	2,17% *	0%	0%
1999	2,28% **	-0,16%	3,11% ***	2,32% ***	2,17% **	1,91% **	2,79% ***	1,23%	-0,46%	0%
2000	-0,58%	-2,03% *	1,3%	0,76%	1,49% *	0,62%	1,26%	1,39%	1,65%	0%
2001	-2% **	-3,43% ***	1,69% **	-0,01%	1,85% **	-0,47%	0,4%	0,81%	3,14% **	0%
2002	-2,24% **	-2,72% **	1,57% *	-1,26%	0,02%	-0,48%	0,12%	-1,83%	0,35%	0%
2003	0,15%	-2,97% **	1,38% *	-0,61%	0,11%	0,68%	-0,08%	-0,41%	-0,92%	0%
2004	1,54%	-1,34%	1,54% **	1,04%	0,73%	1,5% **	1,47%	0,5%	0,58%	0%
2005	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

This table presents the regression results of [2] for the conditional/marginal interaction effect α_{5kki} The dependant variable is dispersion (EDD_J). The t-statistic based on robust standard errors are presented in brackets beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 6: absolute EPS revision statistics

Panel 1: EPS revision median

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	All quarters
1994	8,2%	6,7%	5,7%	4,6%	2,7%	4,9%
1995	10,2%	8,7%	6,2%	4,7%	2,9%	5,9%
1996	11,9%	12,0%	8,9%	7,1%	2,0%	7,3%
1997	10,0%	8,1%	5,7%	5,0%	3,1%	5,5%
1998	8,5%	9,1%	7,1%	3,7%	2,7%	5,7%
1999	11,7%	9,4%	7,1%	5,3%	3,0%	6,5%
2000	10,0%	9,5%	7,0%	5,4%	2,9%	6,5%
2001	11,2%	9,6%	7,7%	5,8%	3,6%	7,2%
2002	10,9%	10,0%	7,9%	5,9%	3,8%	7,5%
2003	10,9%	8,2%	7,4%	5,3%	3,2%	6,4%
2004	9,1%	8,4%	7,1%	4,7%	2,8%	5,9%
2005	10,5%	8,6%	7,5%	4,1%	1,9%	5,7%
All years	10,4%	9,1%	7,2%	5,1%	2,9%	6,3%

Panel 2: EPS revision average

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	All quarters
1994	11,1%	10,1%	8,8%	7,9%	6,0%	8,3%
1995	13,2%	12,4%	10,0%	7,4%	5,4%	9,5%
1996	14,6%	13,9%	11,2%	8,4%	4,3%	10,2%
1997	12,6%	11,0%	9,2%	7,6%	5,4%	9,0%
1998	11,7%	11,8%	10,1%	8,0%	5,8%	9,3%
1999	14,0%	12,3%	10,2%	8,0%	5,9%	9,9%
2000	13,4%	12,9%	11,1%	8,8%	6,0%	10,3%
2001	14,3%	13,3%	11,7%	9,6%	6,4%	10,8%
2002	14,2%	13,5%	11,6%	9,9%	7,4%	11,1%
2003	13,7%	11,7%	10,9%	8,3%	5,8%	9,9%
2004	12,0%	11,0%	9,7%	7,2%	5,8%	9,0%
2005	13,0%	11,7%	10,2%	6,8%	4,2%	9,0%
All years	13,2%	12,2%	10,5%	8,2%	5,7%	9,8%

Panel 3: EPS revision standard deviation

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE	All quarters
1994	9,4%	10,3%	9,2%	8,5%	7,9%	9,1%
1995	10,8%	10,8%	9,6%	7,9%	7,1%	9,7%
1996	10,9%	10,5%	8,8%	6,6%	5,7%	9,4%
1997	10,4%	9,9%	9,4%	8,5%	7,1%	9,4%
1998	10,3%	9,9%	9,7%	9,5%	8,1%	9,8%
1999	11,0%	10,5%	9,8%	8,3%	7,8%	9,9%
2000	11,4%	11,2%	10,7%	9,1%	7,8%	10,4%
2001	11,2%	11,3%	10,6%	9,8%	7,5%	10,5%
2002	11,2%	11,0%	10,3%	9,5%	8,7%	10,4%
2003	10,6%	10,2%	10,1%	8,7%	7,5%	9,8%
2004	10,2%	9,6%	9,3%	7,8%	7,8%	9,2%
2005	10,4%	10,3%	9,3%	7,5%	6,2%	9,4%
All years	10,7%	10,5%	9,8%	8,6%	7,5%	9,8%

TABLE 7: Effects of sectors, time lags and years on revisions

	Model (3)			**Model (4)**		
Variables	Value (without interaction)	Standard error	t	Value (with interactions)	Standard error	t
Intercept				0.0%		
sect-Basic Materials	14,73% ***	0,32%	46,357	15.8% ***	1.0%	15.848
sect-Consumer Goods	11,15% ***	0,26%	42,557	10.4% ***	0.7%	15.223
sect-Consumer Services	11,08% ***	0,26%	43,425	12.0% ***	0.6%	18.947
sect-Financials	13,64% ***	0,24%	56,663	15.1% ***	0.6%	27.020
sect-Health Care	11,48% ***	0,32%	35,566	14.1% ***	1.0%	14.748
sect-Industrials	12,31% ***	0,25%	49,757	11.5% ***	0.6%	19.228
sect-Oil & Gas	14,43% ***	0,41%	35,515	20.6% ***	1.4%	14.506
sect-Technology	14,13% ***	0,37%	38,267	14.4% ***	1.2%	12.358
sect-Telecommunications	14,28% ***	0,40%	35,474	14.1% ***	1.2%	11.676
sect-Utilities	10,77% ***	0,33%	32,590	11.4% ***	1.0%	11.648
timelag FYE	-7,6% ***	0,19%	-40,890	-8.2% ***	1.0%	-8.544
timelag-3m BFY	-5,15% ***	0,19%	-27,261	-5.6% ***	1.0%	-5.786
timelag-6m BFYE	-2,81% ***	0,19%	-14,745	-2.5% ***	1.0%	-2.581
timelag-9m BFYE	-1,07% ***	0,19%	-5,574	-0.7%	1.0%	-0.751
timelag-12m BFYE	0%	0,00%		0.0%	0.0%	
1994	0,08%	0,36%	0,234	-1.7%	1.8%	-0.969
1995	0,51% *	0,30%	1,687	0.9%	1.4%	0.661
1996	1,25% ***	0,29%	4,282	1.4%	1.4%	1.013
1997	0,01%	0,28%	0,039	-2.1%	1.4%	-1.496
1998	0,35%	0,27%	1,285	-2.9% **	1.3%	-2.144
1999	0,92% ***	0,26%	3,488	0.2%	1.3%	0.130
2000	1,28% ***	0,26%	4,883	-1.9%	1.3%	-1.538
2001	1,86% ***	0,27%	7,023	-0.7%	1.2%	-0.529
2002	2,16% ***	0,26%	8,262	0.6%	1.2%	0.512
2003	0,89% ***	0,26%	3,458	2.3% *	1.2%	1.935
2004	-0,01%	0,25%	-0,024	-1.7%	1.2%	-1.401
2005	0%	0,00%		0.0%	0.0%	

Number of observations	25239	25239
R2	0.548	0.560

This table presents the regression results of equation [4] for respectiveley the impact of sector α_{1k}, timelag α_{2h} and year α_{3i}. The dependent variable is dispersion (EDDJ). See Appendix X for variables definition. The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 8: Conditional effects of year and timelag on revisions

Interaction year*timelag

Year	12m BFYE	9m BFYE	6m BFYE	3m BFYE	FYE
1994	0.0%	0.4%	0.6%	3.0% **	3.5% ***
1995	0.0%	0.5%	-0.2%	0.6%	1.3%
1996	0.0%	0.6%	-0.5%	0.1%	-1.3%
1997	0.0%	-0.2%	-0.3%	1.4%	1.8% **
1998	0.0%	1.4%	1.3%	2.5% ***	3.1% ***
1999	0.0%	-0.3%	-0.8%	0.3%	0.8%
2000	0.0%	0.8%	0.6%	1.6% *	1.5%*
2001	0.0%	0.3%	0.3%	1.5% *	1.0%
2002	0.0%	0.6%	0.3%	2.0% **	2.1% ***
2003	0.0%	-0.7%	0.2%	0.9%	1.1%
2004	0.0%	0.3%	0.7%	1.5% *	2.8% ***
2005	0.0%	0.0%	0.0%	0.0%	0.0%

This table presents the regression results of equation [4] for respectiveley the impact of sector α_{1k}, timelag α_{2h} and year α_{3i}. The dependent variable is dispersion (EDDJ). See Appendix X for variables definition. The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 9: Conditional effects of year and sector on revisions

Interaction year*sector

Model parameters (Variable Revision): Revision=f(sector,year,timelag)

Year	Basic Materials	Oil & Gas	Industrials	Consumer Goods	Consumer Services	Financials	Health Care	Technology	Telecommunications	Utilities
1994	0.3%	-9.4% ***	2.0%	2.1%	-1.9%	0.3%	-4.1% **	9.1% ***	-2.4%	0.0%
1995	-2.9% *	-9.5% ***	1.2%	1.1%	-2.8% *	-0.3%	-3.2% *	-1.0%	-6.1% ***	0.0%
1996	-0.6%	-8.7% ***	3.2% **	1.5%	0.9%	-1.3%	-3.5% **	1.6%	-4.9% **	0.0%
1997	0.0%	-6.7% ***	3.4% **	3.5% **	0.3%	2.0%	-3.3% *	4.3% **	1.6%	0.0%
1998	2.6%	-2.9%	2.5% *	5.1% ***	1.0%	0.4%	-2.3%	3.9% **	-2.3%	0.0%
1999	2.7% *	-7.4% ***	2.6% **	3.6% ***	-0.2%	-1.1%	-1.4%	4.1% **	0.1%	0.0%
2000	-0.5%	-0.5%	3.9% ***	4.2% ***	2.8% **	0.8%	1.2%	4.5% ***	7.4% ***	0.0%
2001	0.2%	-5.8% ***	4.0% ***	2.0%	2.3% *	1.3%	-1.9%	4.5% ***	8.8% ***	0.0%
2002	-2.4%	-4.8% **	2.7% **	0.7%	0.0%	1.3%	-2.9% *	0.3%	2.3%	0.0%
2003	-0.6%	-7.4 ***%	-0.1%	-2.3% *	-1.7%	-2.8% **	-3.3% **	-0.7%	-0.8%	0.0%
2004	0.6%	1.5%	2.9% **	1.1%	1.7%	-1.2%	-1.1%	-0.1%	-2.8% *	0.0%
2005	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

This table presents the regression results of equation [4] for respectiveley the impact of sector α_{1k}, timelag α_{2h} and year α_{3i}. The dependent variable is dispersion (EDDJ). See Appendix X for variables definition. The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

TABLE 10: Model parameters (Variable Revision)

Interaction year* sector*timelag ONLY

Year	timelag	Basic Materials	Oil & Gas	Industrials	Consumer Goods	Consumer Services	Financials	Health Care	Technology	Telecommunications	Utilities
1994	12m BFYE	8,18% ***	10% ***	13,11% ***	6,78% ***	8,95% ***	11,78% ***	6,79% ***	17,85% ***	5,1%	9,12% ***
1994	9m BFYE	10,21% ***	13,37% ***	12,35% ***	7,08% ***	9,74% ***	11,5% ***	6,87% ***	12,21% ***	8,89% *	9,35% ***
1994	6m BFYE	10,44% ***	9,74% ***	11,17% ***	7% ***	7,64% ***	11,53% ***	6,43% ***	16,38% ***	10,03% ***	10,21% ***
1994	3m BFYE	13,8% ***	10,72% ***	11,39% ***	6,95% ***	8,15% ***	11,88% ***	7,24% ***	24,02% ***	6,76%	10,02% ***
1994	FYE	11,37% ***	6,87% ***	9,74% ***	8,59% ***	7,6% ***	11,03% ***	8,37% ***	8,09% ***	6,61% **	7,39% ***
1994	3m AFYE	9,21% ***	6,81% ***	9,22% ***	7,97% ***	6,95% ***	10,24% ***	9,54% ***	10,41% ***	8,22% ***	7,48% ***
1995	12m BFYE	11,29% ***	9,42% ***	10,8% ***	8,98% ***	7,36% ***	12,65% ***	7,22% ***	12,78% ***	8,98% ***	8,85% ***
1995	9m BFYE	11,44% ***	8,74% ***	11,06% ***	9,04% ***	7,27% ***	12,12% ***	8,82% ***	11,15% ***	6,68% **	7,96% ***
1995	6m BFYE	13,98% ***	8,37% ***	10,35% ***	7,64% ***	6,52% ***	11,58% ***	9,28% ***	11,59% ***	5,98% **	6,76% ***

1995	3m BFY E	9,9% ***	7,38 % ***	10,09 % ***	7,95% ***	6,49% ***	10,99 % ***	9,15 % ***	10,69% ***	4,19 %	6,46% ***
1995	FYE	6,95 % ***	7,61 % ***	10,64 % ***	7,65% ***	7,32% ***	11,1% ***	8,03 % ***	10,09% ***	5,41 % **	7,44% ***
1995	3m AFY E	8,35 % ***	8,67 % ***	8,42% ***	8,35% ***	7,14% ***	10,3% ***	10,0 9% ***	8,75% ***	6,01 % **	8,73% ***
1996	12m BFY E	12,17 % ***	8,94 % ***	12,19 % ***	8,77% ***	7,1% ***	12,04 % ***	7,98 % ***	10,92% ***	7,2% ***	6,79% ***
1996	9m BFY E	12,76 % ***	9,71 % ***	10,36 % ***	9,68% ***	6,64% ***	11,01 % ***	9,33 % ***	9,15% ***	7,03 % ***	6,88% ***
1996	6m BFY E	9,71 % ***	7,3 % ***	9,33% ***	8,13% ***	6,96% ***	8,1% ***	7,95 % ***	10,89% ***	7,51 % ***	5,99% ***
1996	3m BFY E	10,23 % ***	8,43 % ***	9,83% ***	8,58% ***	8,25% ***	8,35% ***	7,79 % ***	11,26% ***	4,6% *	5,52% ***
1996	FYE	9,57 % ***	8,49 % ***	8,29% ***	7,87% ***	8,43% ***	8,34% ***	7,44 % ***	7,98% ***	5,04 % *	5,81% ***
1996	3m AFY E	8,19 % ***	5,64 % ***	7,65% ***	7,25% ***	7,21% ***	8,62% ***	6,72 % ***	7,77% ***	5,42 % **	5,56% ***
1997	12m BFY E	13,02 % ***	10,4 1% ***	9,8% ***	8,75% ***	7,17% ***	10,03 % ***	8,66 % ***	11,19% ***	7,1% ***	11,46 % ***
1997	9m BFY E	12,62 % ***	7,94 % ***	9,09% ***	8,08% ***	6,26% ***	9,69% ***	8,3 % ***	10,36% ***	6,64 % ***	11,44 % ***
1997	6m BFY E	12,28 % ***	6,33 % ***	8,1% ***	7,44% ***	6,25% ***	9,15% ***	7,13 % ***	11,49% ***	6,24 % ***	5,74% ***

1997	3m BFY E	10,71 % ***	8,4 % ***	8,01% ***	7,71% ***	6,76% ***	8,91% ***	6,94 % ***	9,91% ***	10,48% ***	6,25% ***
1997	FYE	10,29 % ***	8,78 % ***	7,6% ***	7,57% ***	7,03% ***	9,62% ***	8,04 % ***	9,34% ***	9,63 % ***	6,74% ***
1997	3m AFY E	9,07 % ***	8,27 % ***	8,22% ***	7,08% ***	7,49% ***	9,86% ***	7,78 % ***	10,88% ***	9,2% ***	5,43% ***
1998	12m BFY E	10,92 % ***	9,34 % ***	8,54% ***	8,24% ***	7,22% ***	9,84% ***	8,89 % ***	9,53% ***	7,63 % ***	7,58% ***
1998	9m BFY E	10,9 % ***	8,38 % ***	8,71% ***	7,91% ***	7,38% ***	9,54% ***	8,98 % ***	9,41% ***	11,32% ***	5,98% ***
1998	6m BFY E	10,71 % ***	7,8 % ***	7,84% ***	7,5% ***	7,64% ***	10,04 % ***	7,22 % ***	10,37% ***	10,84% ***	7,19% ***
1998	3m BFY E	10,67 % ***	7,3 % ***	7,98% ***	8,18% ***	6,56% ***	9,94% ***	5,37 % ***	8,77% ***	9,86 % ***	6,4% ***
1998	FYE	10,75 % ***	9% ***	7,85% ***	8,54% ***	7,06% ***	9,9% ***	6,96 % ***	7,75% ***	11,54% ***	7,39% ***
1998	3m AFY E	12,34 % ***	9,25 % ***	8,1% ***	8,32% ***	7,43% ***	9,94% ***	6,72 % ***	8,23% ***	9,07 % ***	7,78% ***
1999	12m BFY E	14,45 % ***	11,65% ***	8,96% ***	8,64% ***	8,22% ***	10,84 % ***	7,37 % ***	7,67% ***	9,77 % ***	9,32% ***
1999	9m BFY E	14,35 % ***	12,79% ***	10,27 % ***	8,8% ***	8,29% ***	10,2% ***	8,86 % ***	8,52% ***	10,66% ***	9,13% ***
1999	6m BFY E	14,52 % ***	11,28% ***	9,63% ***	8,25% ***	7,99% ***	9,92% ***	9,13 % ***	9,56% ***	11,73% ***	8,78% ***

1999	3m BFYE	11,02 % ***	12,02% ***	10,02 % ***	9,09% ***	7,66% ***	10,01 % ***	8,53 % ***	10,72% ***	10,32% ***	8,65% ***
1999	FYE	11,81 % ***	12,56% ***	10,5% ***	8,92% ***	8,41% ***	10,07 % ***	11,11% ***	10,42% ***	14,73% ***	9,97% ***
1999	3m AFYE	11,38 % ***	10,49% ***	10,46 % ***	8,38% ***	8,15% ***	10,82 % ***	10,56% ***	12,7% ***	12,6 % ***	8,46% ***
2000	12m BFYE	13,51 % ***	11,83% ***	10,07 % ***	9,55% ***	8,7% ***	10,06 % ***	9,99 % ***	11,63% ***	13,26% ***	11,39 % ***
2000	9m BFYE	12,54 % ***	14,05% ***	10,17 % ***	9,9% ***	9,54% ***	11,64 % ***	10,61% ***	13% ***	14,66% ***	11,5% ***
2000	6m BFYE	13,09 % ***	15,03% ***	11,16 % ***	9,23% ***	9,99% ***	11,11 % ***	9,84 % ***	13,6% ***	15,5 % ***	10,93 % ***
2000	3m BFYE	12,66 % ***	12,46% ***	10,54 % ***	10,05 % ***	10,06 % ***	12,2% ***	9,31 % ***	12,86% ***	18,74% ***	11,72 % ***
2000	FYE	11,3 % ***	11,39% ***	11% ***	9,13% ***	10,36 % ***	11,76 % ***	10,74% ***	13,01% ***	19,33% ***	11,46 % ***
2000	3m AFYE	11,96 % ***	9,98 % ***	10,98 % ***	9,65% ***	10,94 % ***	12,21 % ***	10,77% ***	11,87% ***	15,06% ***	12,25 % ***
2001	12m BFYE	12,36 % ***	14,11% ***	11,59 % ***	9,66% ***	11,01 % ***	10,92 % ***	9,92 % ***	13,2% ***	16,94% ***	11,96 % ***
2001	9m BFYE	13,04 % ***	12,81% ***	11,9% ***	10,94 % ***	11,66 % ***	11,45 % ***	11% ***	11,89% ***	18,9 % ***	12,71 % ***
2001	6m BFYE	11,27 % ***	11,15% ***	12,96 % ***	10,45 % ***	11,56 % ***	11,1% ***	10,38% ***	15,51% ***	16,07% ***	13,58 % ***

2001	3m BFYE	12,51% ***	11,8% ***	12,41% ***	9,9% ***	11,17% ***	12,16% ***	10,21% ***	12,38% ***	23,91% ***	12,36% ***
2001	FYE	10,91% ***	10,37% ***	11,54% ***	9,18% ***	11,51% ***	11,51% ***	10,23% ***	10,94% ***	14,27% ***	11,9% ***
2001	3m AFYE	12,03% ***	11,71% ***	11,55% ***	8,19% ***	10,37% ***	10,89% ***	10,16% ***	14,2% ***	18,94% ***	12,36% ***
2002	12m BFYE	14,62% ***	16,13% ***	13,3% ***	9,47% ***	11,91% ***	13,1% ***	10,23% ***	10,71% ***	18,86% ***	12,9% ***
2002	9m BFYE	14,82% ***	15,52% ***	12,98% ***	9,51% ***	11% ***	13,29% ***	10,12% ***	11,98% ***	18,44% ***	13,11% ***
2002	6m BFYE	13,25% ***	12,37% ***	13,4% ***	9,71% ***	10,46% ***	12,1% ***	11,7% ***	10,72% ***	20,27% ***	13,99% ***
2002	3m BFYE	12,23% ***	14,68% ***	13,86% ***	10,26% ***	10,55% ***	12,57% ***	12,57% ***	11,83% ***	12,32% ***	14,17% ***
2002	FYE	10,23% ***	12,7% ***	12,59% ***	9,2% ***	9,76% ***	11,31% ***	11,42% ***	12,57% ***	16,99% ***	14,2% ***
2002	3m AFYE	11,61% ***	10,7% ***	11,16% ***	8,99% ***	8,8% ***	11,66% ***	10,18% ***	10,48% ***	12,76% ***	12,66% ***
2003	12m BFYE	13,6% ***	14,44% ***	12,46% ***	9,48% ***	11,19% ***	13,77% ***	10,08% ***	11,44% ***	16,69% ***	13,04% ***
2003	9m BFYE	16,36% ***	12,89% ***	12,65% ***	9,06% ***	10,56% ***	12,76% ***	9,18% ***	11,17% ***	14,89% ***	13,84% ***
2003	6m BFYE	14,05% ***	13,43% ***	12,59% ***	9,9% ***	10,12% ***	12,92% ***	9,5% ***	11,84% ***	12,5% ***	12,78% ***

2003	3m BFYE	11,93 % ***	12,39% ***	11,57 % ***	9,29% ***	9,21% ***	12,61 % ***	9,46 % ***	10,34% ***	16,43% ***	12,98 % ***
2003	FYE	14,02 % ***	10,53% ***	10,12 % ***	8,07% ***	7,73% ***	11,36 % ***	10,28% ***	12,68% ***	14,03% ***	11,36 % ***
2003	3m AFYE	14,24 % ***	10,26% ***	9,93% ***	8,47% ***	7,5% ***	10,81 % ***	9,78 % ***	12,24% ***	12,34% ***	10,12 % ***
2004	12m BFYE	15,11 % ***	12,79% ***	11,08 % ***	8,54% ***	8,43% ***	12,27 % ***	8,84 % ***	11,41% ***	15,64% ***	11,91 % ***
2004	9m BFYE	14,73 % ***	12,22% ***	9,96% ***	9,06% ***	8,81% ***	11,36 % ***	10,29% ***	10,97% ***	14,49% ***	10,13 % ***
2004	6m BFYE	14,14 % ***	12,84% ***	10,29 % ***	8,66% ***	7,77% ***	11,28 % ***	8,96 % ***	11,77% ***	13,23% ***	10,67 % ***
2004	3m BFYE	12,93 % ***	11,59% ***	8,91% ***	7,87% ***	7,36% ***	10,85 % ***	9,29 % ***	10,14% ***	12,51% ***	9,43% ***
2004	FYE	11,81 % ***	10,19% ***	8,6% ***	8,67% ***	7,36% ***	10,35 % ***	8,59 % ***	9,49% ***	13,61% ***	9,24% ***
2004	3m AFYE	11,05 % ***	11,42% ***	8,61% ***	8,62% ***	7,38% ***	10,26 % ***	8,81 % ***	8,63% ***	13,94% ***	10,02 % ***
2005	12m BFYE	13,49 % ***	13,41% ***	8,77% ***	8,77% ***	7,8% ***	10,37 % ***	9,35 % ***	10,7% ***	12,42% ***	9,7% ***
2005	9m BFYE	13,92 % ***	16% ***	8,69% ***	8,23% ***	7,14% ***	9,84% ***	8,37 % ***	11,12% ***	13,8% ***	10,33 % ***
2005	6m BFYE	14,22 % ***	14,62% ***	8,08% ***	7,72% ***	6,88% ***	8,76% ***	7,27 % ***	9,81% ***	14,13% ***	9,69% ***

2005	3m BFYE	10,34 % ***	12,42% ***	8,3% ***	7,76% ***	7,51% ***	10,11 % ***	7,38 % ***	10,89% ***	13,68% ***	11,45 % ***
2005	FYE	9,48 % ***	11,6 % ***	7,52% ***	6,96% ***	7,36% ***	9,82% ***	7,3 % ***	9,38% ***	14,03% ***	9,97% ***
2005	3m AFYE	9,89 % ***	12,21% ***	7,98% ***	6,66% ***	7,12% ***	9,53% ***	7,23 % ***	8,32% ***	12,53% ***	11,31 % ***
NB Observations		29786									
R2		0.717									

This table presents the regression results of for a model with a triple interaction between the impact of sector α_{1k}, timelag α_{2h} and year α_{3i}. The dependent variable is dispersion (EDDJ). See Appendix X for variables definition. The t-statistic based on robust standard errors are presented in parentheses beneath each estimate ***, **, and * indicate two-tailed statistical significance at the 1%, 5% and 10% respectively.

ARTICLE 3: When Enforcement Matters: The Conditional Impact of IFRS on Analysts' Forecasts Across Europe

When Enforcement Matters: The Conditional Impact of IFRS on Analysts' Forecasts Across Europe

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When Enforcement Matters: The Conditional Impact of IFRS on Analysts' Forecasts Across Europe

Abstract:

This study examines the impact of International Financial Reporting Standards (IFRS) adoption on the quality and dispersion of financial analysts' earnings estimates across European markets. Europe offers a unique setting for this analysis, as IFRS adoption was mandatory and simultaneous across EU member states in 2005, yet enforcement practices and institutional capacities remained heterogeneous. Using a dataset of over 850,000 earnings forecasts issued by the top 100 brokerage houses for 1,323 companies listed in the DJ Stoxx 600 between 1992 and 2023, the study employs panel regressions and difference-in-differences models to evaluate changes in analyst behavior before and after IFRS implementation. Countries are grouped by legal enforcement strength and accounting system similarity to capture this institutional diversity. The results reveal that, while IFRS adoption globally increased forecast dispersion and error, it significantly improved forecast accuracy and reduced dispersion in countries with strong enforcement. These effects were further moderated by sectoral transparency and the timing of forecasts. Using a novel financial-year-level event study design, combining the temporal precision of event studies with the causal strength of a difference-in-differences framework, the study demonstrates that IFRS is not a universally effective reform; its impact depends critically on legal infrastructure, industry characteristics, and temporal design. The findings highlight that regulatory harmonization alone is insufficient to guarantee improved analyst behavior and underscore the value of Europe as a natural laboratory for evaluating international accounting reforms.

Keywords: Broker, IFRS**,** Financial analyst, Earnings Estimates, Estimate Dispersion, Sell-side

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1.Introduction

The adoption of International Financial Reporting Standards (IFRS) have marked one of the most far-reaching global financial reporting reforms of recent decades. Designed to enhance the transparency, comparability, and usefulness of financial disclosures, IFRS have been widely implemented across jurisdictions, prompting extensive academic interest in its broader effects. A substantial body of literature has documented improvements in accounting quality, investor behavior, and capital market efficiency. For instance, Cormier, Ledoux, and Villeneuve (2015) find that the value relevance of discretionary accruals improves under IFRS, particularly in countries with strong legal institutions and heightened environmental uncertainty. Similarly, Ahmed, Chalmers, and Khlif (2013) conclude that IFRS adoption tends to improve accounting quality, though the magnitude and nature of its effects vary across institutional settings. Other studies highlight the capital market consequences of IFRS: Shima and Gordon (2011) show that U.S. investors are more inclined to allocate capital to firms from countries that adopt IFRS in combination with robust regulatory frameworks, while Florou and Pope (2012) report increased institutional investor interest following mandatory IFRS adoption. Liao, Sellhorn, and Skaife (2012) further support the view that IFRS improve the cross-country comparability of earnings and book values, particularly using data from France and Germany.

Importantly, the effects of IFRS adoption are not uniform across all contexts. Cai, Rahman, and Courtenay (2014) emphasize that the benefits of IFRS are conditional on the level of pre-adoption divergence from international standards, with firms facing higher divergence experiencing more pronounced improvements in reporting quality post-adoption. This context sensitivity is echoed in Houqe, Easton, and van Zijl (2014), who find that mandatory IFRS adoption improves information quality more significantly in countries with weaker investor protection, suggesting that IFRS may substitute for domestic institutional weaknesses. Beyond reporting quality, IFRS adoption also affects firms' external relations. Moscariello, Skerratt, and Pizzo (2014) report a decline in the cost of debt in both Italy and the UK following IFRS implementation, reflecting improved transparency and reduced information asymmetry. On the audit side, Kim, Liu, and Zheng (2012) show that mandatory IFRS adoption leads to higher audit fees, likely due to the increased complexity and auditor effort required to verify fair value measurements and comply with more rigorous disclosure requirements. Kraft, Landsman, and Shan (2021) further demonstrate that IFRS adoption enhances the predictive power of accounting-based models used to assess credit risk via CDS spreads, suggesting a higher decision-usefulness of financial information under IFRS.

Despite these documented benefits, less attention has been paid to the downstream effects of IFRS on financial analysts, who serve as a crucial interface between corporate disclosures and capital markets.

Analysts rely heavily on financial statements and managerial guidance to generate earnings forecasts, which are central to market pricing and investor expectations. The impact of IFRS adoption on the accuracy, bias, or dispersion of these forecasts remains underexplored. Some studies on management earnings forecasts, a key input for analysts, offer relevant insights. Li and Yang (2016) find that mandatory IFRS adoption significantly increases both the frequency and precision of management forecasts, suggesting that more transparent standards incentivize managers to issue more credible forward-looking guidance. Building on this, Gu, Ng, and Tsang (2019) show that the impact of IFRS on management forecasts is conditioned by enforcement strength, with stronger post-IFRS enforcement leading to more timely and accurate disclosures. If IFRS improve the quality and availability of managerial guidance, it is likely to enhance the overall quality of analysts' forecasts.

Other studies explicitly explore the impact of IFRS adoption on analyst behavior. Jiao et al. (2012) observe that analysts' earnings forecasts became more accurate and less dispersed following the mandatory adoption of IFRS in European countries, suggesting enhanced financial reporting quality. Cheong et al. (2010) find a similar effect in the Asia-Pacific region, attributing improvements in forecast accuracy to increased transparency and comparability. In the context of emerging markets, Masoud (2017) shows that mandatory IFRS adoption in Jordan led to lower forecast errors and dispersion, reflecting an improved information environment. Aboud et al. (2018) add that the implementation of IFRS improved the quality and quantity of segment information, thereby enhancing analysts' earnings forecast accuracy in the European Union.

This study investigates whether IFRS adoption has influenced analysts' earnings forecasts across European markets, focusing specifically on forecast accuracy and dispersion. It further examines whether these effects are conditional on the strength of legal enforcement mechanisms. The institutional setting plays a critical role in moderating the effectiveness of accounting reforms, a point emphasized in the Law and Finance framework (La Porta et al., 1998), which links legal origin and investor protection to financial outcomes. DeFond, Hung, and Trezevant (2007) show that the information content of earnings announcements is significantly higher in countries with robust investor protection, while Brown and Higgins (2005) find that managerial guidance is more informative in such environments. Kerl and Pauls (2014) report that analyst herding is less prevalent in countries with stronger investor protection, and von Koch, Nilsson, and Collin (2015) show that legal origin shapes analyst forecast behavior. Arand, Kerl, and Walter (2015) demonstrate that analysts produce more informative reports in jurisdictions with stronger shareholder rights and institutional presence. Further evidence by Hovakimian and Saenyasiri (2014), Aubert and Louhichi (2015), and Sun (2009) confirms that legal and regulatory environments influence analyst forecast characteristics.

However, the validity of legal origin as an empirical classifier has been questioned. Spamann (2010) critiques the widely used Anti-director Rights Index (ADRI), showing that its corrected version

undermines many core findings of the Law and Finance literature, including claims about the superiority of common law countries in investor protection. In response to these concerns, Byard, Li, and Yu (2011) propose a country classification that focuses directly on analysts' information environments in the context of IFRS adoption. Their typology, based on pre-adoption earnings quality and institutional setting, offers a more precise framework for analyzing IFRS's effects on analyst behavior.

Prior to IFRS, earnings quality varied considerably across European countries using national GAAP. Van Tendeloo and Vanstraelen (2005) show that German firms using local GAAP engaged in more earnings management than those voluntarily reporting under IFRS. Paananen and Lin (2009) observe that the transition to IFRS did not immediately improve reporting quality in Germany but emphasized that local standards were inconsistent and lacked investor credibility. Beckman, Brandes, and Eierle (2007) reveal material differences in income and equity figures when reconciling German HGB to IFRS or US GAAP. Liao, Sellhorn, and Skaife (2012) further demonstrate limited comparability between France and Germany pre-IFRS, reflecting divergent accounting traditions. In Italy, Cordazzo (2013) and Corbella et al. (2013) find that IFRS adoption led to greater earnings volatility due to the economic substance emphasized by IFRS. Kouki (2018) reports persistent earnings management under local GAAP in Germany, France, and Belgium, especially in weak investor protection contexts. Even in the UK, where GAAP was more market-oriented, Olibe et al. (2022) show that earnings under UK GAAP were less predictive than under IFRS. Choi, Peasnell, and Toniato (2013) also find that IFRS improve the predictive power of earnings, implying a better informational environment for analysts.

Drawing on a sample of more than 850,000 earnings estimates issued by the top 100 brokerage houses for 1,323 European firms from 1993 to 2023, this study employs panel regressions and an inverted difference-in-differences framework to examine the effects of IFRS adoption on analysts' forecast accuracy and dispersion. It pays particular attention to institutional enforcement strength and country-specific accounting contexts. This approach allows for an assessment of whether IFRS functions as a harmonizing force across diverse regulatory environments or whether its effects are conditional on the presence of supporting legal infrastructures.

This study investigates the uneven impact of IFRS adoption on analysts' earnings forecasts across countries, emphasizing the role of institutional context and timing. Using a novel financial-year-level event study design, combining the temporal precision of event studies with the causal strength of a difference-in-differences framework, the analysis reveals that IFRS effects are highly conditional. While aggregate results show increased forecast dispersion and error post-adoption, countries with strong enforcement ("disciplined" environments) experienced significant improvements in forecast accuracy and consensus.

These findings support the concept of conditional convergence, whereby institutional and legal quality determine whether IFRS delivers its intended informational benefits. In well-regulated settings, IFRS serves as an effective harmonizing tool, enabling analysts to better interpret standardized disclosures. In contrast, weak enforcement environments see minimal gains.

Importantly, IFRS effects are also temporally localized. Significant improvements are most evident in short windows surrounding adoption, while longer estimation periods dilute these effects due to unrelated macroeconomic events. Furthermore, benefits are concentrated in high-transparency sectors and for short-horizon forecasts, suggesting that both sectoral visibility and timing influence the utility of IFRS.

Overall, the study demonstrates that IFRS is a necessary but insufficient condition for improving forecast quality: its success depends on where, when, and how it is implemented.

2. Literature review and hypothesis development

2.1 Forecasting in a Global Reporting Environment: IFRS Adoption and Legal Enforcement Effects

The implementation of International Financial Reporting Standards (IFRS) has received extensive academic attention, particularly concerning its impact on financial reporting quality, capital market efficiency, and information asymmetry. A robust body of research suggests that IFRS improve the quality of financial information by enhancing comparability across firms and jurisdictions, while also curbing earnings management (Barth et al., 2008; Daske et al., 2008). These enhancements are expected to benefit market participants, including financial analysts, by providing more transparent and reliable data for earnings forecasts.

Financial analysts act as critical information intermediaries by interpreting corporate financial disclosures, generating earnings estimates, and issuing investment recommendations. Their effectiveness is closely tied to the transparency and credibility of financial information, both of which are influenced by the prevailing regulatory environment. IFRS, by promoting standardized and high-quality reporting, is believed to improve analysts' forecasting performance. Empirical studies support this link: Byard et al. (2011) find that mandatory IFRS adoption significantly improves analysts' forecast accuracy, although they note that the benefits are not evenly distributed across countries. Similarly, Christensen et al. (2013) show that countries with stronger enforcement mechanisms exhibit more pronounced improvements in analyst forecast accuracy and coverage following IFRS adoption.

DeFond and Hung (2007) further support the importance of legal institutions by showing that analysts issue more frequent and accurate cash flow forecasts in countries with strong investor protection, indicating that institutional quality shapes not only reporting outcomes but also analysts' reliance on less manipulable performance metrics. Consistent with this, Beuselinck et al. (2017) show that the analysts who benefited most from IFRS adoption were those with superior prior forecasting skills and local information advantages, particularly in countries with strong enforcement and significant pre-IFRS GAAP divergence. This also aligns with Hail (2007), who emphasizes that the institutional environment not only affects forecast accuracy but also shapes the type of forecast information analysts prioritize, particularly in settings with limited investor protection or low-quality disclosures.

Forecast dispersion, defined as the degree of disagreement among analysts' earnings estimates, is another key dimension of forecast behavior. It serves as a proxy for information uncertainty and the clarity of financial reporting. In theory, IFRS should reduce dispersion by aligning reporting practices and minimizing interpretive differences among analysts. While some evidence supports this hypothesis (Tan et al., 2011), other studies report negligible effects (Masoud, 2017) or even adverse outcomes, particularly when analysts face challenges interpreting the new standards or when compliance is superficial (Yip & Young, 2012).

Extending this line of inquiry, Ha et al. (2025) provide evidence that IFRS-induced discretion in reporting key earnings subtotals, specifically operating income (OI), can temporarily hinder analysts' forecasting effectiveness. Exploiting Korea's IFRS transition and a subsequent regulatory intervention, they find that analysts significantly reduced their OI forecast coverage and produced less accurate OI forecasts during the period when no formal definition of OI existed. These effects were reversed after regulatory authorities reinstated a standardized definition. Their findings highlight that when IFRS permits excessive discretion, particularly during transitional periods, the lack of standardized benchmarks can increase information-processing costs for analysts and diminish the usefulness of forecasts. This study brings attention to the underexplored costs of IFRS implementation and supports recent initiatives by the IASB to mandate more structured reporting of earnings subtotals (e.g., IFRS 18).

These mixed findings highlight the importance of the broader institutional context in shaping the outcomes of IFRS adoption. Lang, Lins, and Miller (2003) provide international evidence that analysts are particularly valuable in environments with weak investor protection, acting as alternative monitors and enhancing firm valuation. This suggests that analyst behavior and forecast utility are not only shaped by IFRS, but also by the broader institutional context in which they operate. As Leuz et al. (2003) argue, in countries with weak investor protection and legal infrastructure, the benefits of IFRS may not materialize due to non-compliance or symbolic implementation. Empirical studies further confirm that legal enforcement moderates the effectiveness of IFRS reforms. Christensen et al. (2013)

emphasize that enforcement quality is crucial to realizing improvements in reporting and analyst behavior. In the same vein, Houqe et al. (2012) find that the strength of legal institutions significantly shapes the relationship between IFRS adoption and forecast accuracy. Supporting the view that IFRS outcomes depend on institutional context, Behn et al. (2013) find that classification shifting, a form of earnings manipulation, remains prevalent in weak enforcement environments, and is only constrained by strong investor protection and intense analyst scrutiny.

Taken together, the evidence suggests that the effects of IFRS adoption on analysts' forecast accuracy and dispersion are not uniform but are conditioned by each country's institutional characteristics. Regulatory reforms such as IFRS do not operate in isolation; rather, their impact is deeply intertwined with the legal, cultural, and enforcement frameworks that govern financial reporting practices.

2.2 Hypothesis development

H1a: IFRS adoption had an undifferentiated impact on the dispersion of analysts' earnings estimates.

H1b: IFRS adoption had an undifferentiated impact on the revision of analysts' earnings estimates.

H2a: IFRS have a differentiated impact on estimates dispersion according to country law enforcement

H2b: IFRS have a differentiated impact on estimates revision according to country law enforcement

H3a: The causal effects of IFRS adoption on analysts' forecast dispersion are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

H3b: The causal effects of IFRS adoption on analysts' forecast revisions are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

2.2.1 Hypothesis H1a: IFRS adoption had an undifferentiated impact on the dispersion of analysts' earnings estimates.

In terms of forecast dispersion, the literature indicates that IFRS contributes to a reduction in analysts' disagreement. Horton, Serafeim, and Serafeim (2013) show that forecast dispersion decreased significantly after the 2005 mandatory IFRS adoption in the EU. Likewise, He and Lu (2018) find that

analysts issued more frequent and more consistent sales forecasts in the post-IFRS period, reflecting reduced uncertainty. Cotter, Tarca, and Wee (2012) confirm this for Australian firms, observing a significant drop in forecast error and dispersion associated with IFRS-related disclosures.

Despite general support for IFRS's positive impact, some studies note that benefits are not universal. For example, Masoud (2017) found no significant reduction in dispersion or improvement in accuracy following IFRS adoption in Jordan. Moreover, Dinh et al. (2015) highlight potential adverse effects tied to the complexity of IFRS, especially the capitalization of R&D expenditures under IAS 38, which led to increased forecast errors and dispersion in R&D-intensive firms.

The variation in outcomes across firms and countries suggests that IFRS do influence analysts' forecasting behavior, but that the magnitude and direction of this impact can depend on contextual factors such as firm characteristics, analyst experience, and regulatory enforcement.

Based on this research, we propose the following hypothesis:

Hypothesis H1a: IFRS adoption had an undifferentiated impact on the dispersion of analysts' earnings estimates.

2.2.2 Hypothesis H1b: IFRS adoption had an undifferentiated impact on the revision of analysts' earnings estimates.

The adoption of International Financial Reporting Standards (IFRS) represents a pivotal regulatory reform aimed at enhancing the comparability, transparency, and quality of financial information across countries. A substantial body of literature suggests that IFRS adoption significantly influences analysts' earnings forecast properties, particularly accuracy (i.e., quality) and dispersion (i.e., variability among forecasts).

Forecast accuracy is considered a key indicator of the quality of analysts' information environments. Numerous empirical studies provide evidence that IFRS adoption improves the precision of earnings estimates. For instance, Byard, Li, and Yu (2011) document that the mandatory adoption of IFRS across 17 EU countries led to more accurate and less dispersed analyst forecasts, especially in jurisdictions with higher pre-IFRS accounting quality and stricter enforcement mechanisms. Similarly, Jiao et al. (2012) find that forecast errors declined and forecast dispersion narrowed significantly following IFRS adoption across 19 European countries. Tan, Wang, and Welker (2011) also show that

IFRS adoption attracted more foreign analysts and enhanced their forecast accuracy, particularly in countries where IFRS significantly differed from local GAAP. While Tan, Wang, and Welker (2011) document that IFRS adoption enhanced comparability and attracted more foreign analyst coverage, this study focuses on the forecast properties themselves, particularly accuracy and dispersion, across institutional contexts.

Other studies confirm that comparability improvements under IFRS are an important channel through which these effects occur. Petaibanlue, Walker, and Lee (2015) show that enhanced comparability among firms across borders led to more accurate forecasts. This is reinforced by Barniv, Myring, and Westfall (2022), who demonstrate that IFRS-specific experience among analysts improved forecast accuracy, especially in countries with high investor participation and larger differences between IFRS and prior domestic standards.

The timing of forecasts also appears to moderate IFRS's effect. Barniv et al. (2022) report that analysts provide more accurate forecasts immediately preceding earnings releases when they have accumulated IFRS-specific expertise. This supports the idea that IFRS adoption improves not only the general forecast environment but also forecast accuracy at critical time horizons.

Hypothesis H1b: IFRS adoption had an undifferentiated impact on the revision of analysts' earnings estimates.

2.2.3 Hypothesis H2a: IFRS has a differentiated impact on estimates dispersion according to country law enforcement

While numerous studies support the view that IFRS adoption reduces analysts' forecast dispersion by enhancing financial transparency and comparability, emerging evidence highlights that these effects are not homogenous. Instead, the impact of IFRS on dispersion appears to be conditional upon three key dimensions: (1) the strength of country-level legal enforcement, (2) the forecast horizon or timelag, and (3) sector-specific accounting practices and complexity.

Legal Enforcement as a Moderator

The strength of a country's legal and regulatory enforcement regime plays a pivotal role in determining the success of IFRS adoption. Byard, Li, and Yu (2011) provide evidence that IFRS reduce forecast dispersion more effectively in countries with strict enforcement and stronger pre-

existing accounting quality. Similarly, Horton, Serafeim, and Serafeim (2013) show that analysts' forecast dispersion decreased significantly post-IFRS, especially in countries with robust legal infrastructure. He and Lu (2018) also find that the improvement in forecast consistency was greater in countries with strong investor protection, suggesting that institutional enforcement is crucial for realizing the benefits of IFRS in reducing uncertainty among analysts. Wen and Chien-Ju (2018) show that improvements in analysts' forecast accuracy after IFRS adoption are more pronounced in environments with high investor protection and lower earnings management incentives, reinforcing the importance of institutional quality in moderating IFRS outcomes. Similarly, Li and Zhang (2022) find that the benefits of IFRS adoption on forecast informativeness depend on firm-level reporting incentives and analyst sophistication, suggesting that both firm and market conditions shape the extent to which IFRS improves the information environment.

Extending this line of inquiry, Aboud, Roberts, and Zalata (2018) examine the role of enforcement in shaping the impact of IFRS 8, focused on segment reporting, on analysts' earnings forecast errors. Their study reveals that improvements in segment information quality and disaggregated country-specific disclosures under IFRS 8 are associated with reduced forecast errors, but only in countries with strong accounting enforcement mechanisms. This finding reinforces the notion that enforcement quality is not merely complementary but essential to realizing the forecast-related benefits of IFRS norms.

This conditionality aligns with the findings of La Porta et al. (2000) and Beck, Demirgüç-Kunt, and Levine (2002), who show that countries with common-law traditions generally offer stronger legal enforcement and investor protection, which in turn enhance financial market outcomes. In contrast, civil-law countries, especially those influenced by the Napoleonic Code, exhibit weaker legal adaptability and enforcement, limiting IFRS's effectiveness.

Forecast Horizon (Timelag)

Another dimension moderating IFRS's effect on dispersion is the timing of analyst forecasts relative to earnings announcements. Barniv, Myring, and Westfall (2022) demonstrate that IFRS-specific experience enhances forecast accuracy particularly in short horizons just before earnings releases. This implies that the informativeness and interpretability of IFRS-based disclosures become more actionable as more data accumulate and uncertainty diminishes near the announcement date, thereby reducing forecast dispersion in the short term. Although He and Lu (2018) include a "horizon" variable, they do not elaborate on its specific effects; however, their results support the notion that shorter forecast horizons after IFRS are associated with more consistent analyst behavior.

Sector-Specific Variation

The effect of IFRS on forecast dispersion also varies across industries, depending on the complexity and discretion involved in financial reporting. Stadler and Nobes (2014) find that IFRS policy choices are influenced significantly by country factors and moderately by industry characteristics, particularly when the accounting treatment does not materially affect headline numbers. Furthermore, Dinh et al. (2015) show that in R&D-intensive sectors, the capitalization of development costs under IAS 38 increases complexity, which leads to greater forecast dispersion. These findings suggest that while IFRS aim to standardize accounting, sector-specific applications can introduce interpretive challenges that raise disagreement among analysts.

In sum, although IFRS adoption is designed to reduce uncertainty and standardize financial reporting, its effect on forecast dispersion is not uniform. Rather, it is modulated by institutional enforcement quality, the forecast horizon, and industry-specific practices. These dimensions interact to shape how analysts interpret and apply IFRS-based information in their earnings forecasts.

Based on this multifactorial perspective, we propose the following hypothesis:

Hypothesis H2a: IFRS have a differentiated impact on estimates dispersion according to country law enforcement.

2.2.4 Hypothesis H2b: IFRS have a differentiated impact on estimates revision according to country law enforcement

Forecast revisions (adjustments analysts make to prior earnings estimates) serve as dynamic indicators of how new information is processed in capital markets. IFRS, by increasing the timeliness, clarity, and comparability of financial data, can be expected to influence the frequency, magnitude, and direction of these revisions. However, similar to its impact on forecast dispersion (as discussed in Hypothesis 2), the effect of IFRS on revisions is not uniform and depends on country-level enforcement, forecast horizon, and sector-specific complexities.

As previously noted, legal enforcement strength, timelag, and industry characteristics shape how IFRS are implemented and interpreted. These same factors condition analysts' likelihood and confidence in revising forecasts. For example, He and Lu (2018) find that analysts were more likely to issue additional forecasts post-IFRS in countries with strong enforcement and greater IFRS-GAAP

divergence. This is evidence that IFRS improved the information environment and encouraged more responsive analyst behavior. Barniv, Myring, and Westfall (2022) further show that forecast accuracy is significantly enhanced in short-horizon periods immediately preceding earnings announcements, reinforcing the idea that IFRS facilitate more effective revisions when analysts are closer to information events.

Sectoral differences also play a role. Dinh et al. (2015) highlight that R&D-intensive firms experience more erratic revisions due to the complexity of capitalizing development expenditures under IAS 38, suggesting that IFRS's impact on revisions is shaped by industry-specific accounting discretion.

Together, these findings support the notion that IFRS influence analysts' revisions, but that the degree and quality of these revisions vary systematically across institutional and economic contexts.

Hypothesis H2b: IFRS have a differentiated impact on estimates revision according to country law enforcement.

2.2.5 Hypothesis H3a: The causal effects of IFRS adoption on analysts' forecast dispersion are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

The extent to which IFRS adoption reduces analysts' earnings forecast dispersion appears to be highly sensitive to the temporal window around the implementation date. While much of the existing literature focuses on long pre and post adoption periods (e.g., Kraft et al., 2021 [2000–2012]; Cai et al., 2014 [2000–2009]; Barniv et al., 2022 [2000–2010]), several studies targeting narrower windows (especially those that straddle 2005 more tightly) tend to detect sharper reductions in dispersion (e.g., Jiao et al., 2012 [2004 & 2006]; Beuselinck et al., 2017 [2003–2007]; Charitou et al., 2017 [2003–2007]). Our robustness checks confirm this observation: the shorter the sample period surrounding the 2005 IFRS adoption date, the stronger the reduction in forecast dispersion. For instance, when restricting the analysis to a ±3-year window around 2005, the drop in dispersion is notably larger than in longer horizons, where other macroeconomic factors or gradual analyst learning may dilute the measured effect. In contrast, studies with extended periods, such as Wang and Yu (2021) [1995–2018], report mixed or muted impacts on dispersion, likely due to confounding regulatory or economic shifts over time. These findings suggest that the temporal framing of the empirical design is not neutral: it actively shapes the observed impact of IFRS on the analysts' information environment. Accordingly, we formulate the hypothesis that:

H3a: The causal effects of IFRS adoption on analysts' forecast dispersion are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

2.2.6 Hypothesis H3b: The causal effects of IFRS adoption on analysts' forecast revisions are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

The effect of IFRS adoption on analysts' earnings estimate revisions, that is the magnitude of changes in forecasts, also appears to be sensitive to the time window chosen around the reform. While long-horizon studies such as Wang and Yu (2021) [1995–2018] or Kraft et al. (2021) [2000–2012] examine analyst behavior across multiple economic cycles and policy regimes, their results often dilute the direct causal impact of IFRS due to overlapping regulatory, macroeconomic, or structural market changes. In contrast, studies employing shorter pre- and post-adoption windows (e.g., Jiao et al., 2012 [2004 and 2006]; Demmer et al., 2019 [1999–2004 and 2007–2012]) tend to observe a stronger improvement in forecast revision behavior, reflecting more immediate analyst adaptation to enhanced disclosure practices. Our robustness tests further confirm this pattern: the narrower the temporal scope around 2005, the sharper the observed drop in estimation noise and revision volatility. This suggests that the timing of the measurement window not only captures the direct IFRS effect more clearly but also reduces the confounding influence of analyst learning curves, macroeconomic shocks, or unrelated regulatory reforms. Accordingly, we hypothesize that:

H3b: The causal effects of IFRS adoption on analysts' forecast revisions are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

3. Methodology

3.1 Sample

The sample contains a panel of analyst earnings estimates from December 1993 to December 2023 obtained from *FactSet* database. The sample includes analysts' earnings estimates on the constituents

of the Europe STOXX 600 index over that period. Also the sample includes all the companies that have been a part of the Europe SOXX Europe 600 giving a total universe of 1 269 stocks.

We compute statistics at the brokerage house level because we do not have access to analyst-level data. Nevertheless, the literature (Do and Zhang, 2020; Groysberg *et al.*, 2008; Huang *et al.*,2022) shows that the brokerage house environment has a considerable effect on analysts' performance. Therefore, it makes sense to compute statistics at the brokerage house level rather than at the analyst level.

We concentrate on analyst reports issued by the top 100 brokerage houses in terms of research output[3]. The total number of earnings estimates in our sample amounts to 850 453, from 12/31/1993 to 12/31/2023 on a quarterly basis.

3.2 Variables

$$\mathbf{(1)\ dispersion\ (s,q,y)} = \mathbf{ABS(Stdev}_{i=1\ to\ n}\ (\boldsymbol{Earning\ Estimate}_i(\mathbf{s},\boldsymbol{m}))\mathbf{/Median(}\boldsymbol{Earning\ Estimate}_i(\mathbf{s},\boldsymbol{m}))\mathbf{)}$$

where:
Dispersion (s,q,y): the standard deviation of brokers' earnings estimates at end of quarter (q) for financial year (y)
s: a particular stock
q: date in quarter
y: fiscal year
n: the number of brokers with an earning estimate

$$\mathbf{(2)Estimate\ error\ (s,q,y,b)} = \mathrm{abs}((\mathrm{EE}_{s,q,b,q} - \mathrm{EE}_{s,q,b,FYE+3m})/\mathrm{EE}_{s,q,b,q})$$

where:
Estimate error (s,q,y,b): absolute error as a % between estimate at date q and estimate at date financial year end + 3 months for a given financial year, broker and company
s: a particular stock
q: date in quarter
y: fiscal year
b: a particular broker

[3] The code source to obtain the data from *Factset* is available upon request.

3.3 Models

The models were implemented with the statistical software "R".

Table 0 Models

Hypothesis	Raw data	Measures	Models
H1a	Earnings estimate	Standard Deviation	Y i,t = βt [IFRS] + constant α + λt (fixed year effect) +εi,t
H1b		Earning revision	Y i,t = β1 *G1 + β2*G2 + β3*G3 + constant α + λt (fixed year effect) + εi,t
H2a		Standard Deviation	Y i,t = β2[G2×IFRS]+β3[G3×IFRS] + constant α + δi (fixed country type effect: disciplined Or undisciplined) + λt (fixed year effect) + εi,t
H2b		Earning revision	Y i,t = β2,t[G2×IFRSxyeart]+β3,t[G3×IFRSxyeart] + constant α + δi (fixed country type effect) + λt (fixed year effect) + εi,t Y i,t,s = β2,s[sectorsxG2×IFRS]+β3,s[sectorsxG3×IFRS] + constant α + δi (fixed country type effect) + λt (fixed year effect) + εi,t Y i,t,s = β2,s[timelagsxG2×IFRS]+β3,s[timelagsxG3×IFRS] + constant α + δi (fixed country type effect) + λt (fixed year effect) + εi,t
H3a		Standard Deviation	"windows" robustness test: Y i,t = β [IFRS] + constante α + λt (fixed year effect) + εi,t
H3b		Earning revision	"event study" analysis: Y i,t = β2,t[G2×yeart]+β3,t[G3×yeart] + constante α + δi (fixed country type effect) + λt (fixed year effect) + εi,t

Across all the models employed to test hypotheses H1a through H3b, several control variables are systematically included to ensure that the estimated effects of IFRS adoption on analyst forecast quality are not confounded by unrelated factors. A central control feature is the inclusion of year fixed effects, which appear consistently throughout the models. These capture global time-specific shocks or trends (such as financial crises or broad macroeconomic fluctuations) that might otherwise bias the analysis. By holding constant the influence of such year-specific events, the models ensure that any observed changes in forecast dispersion or accuracy can more reliably be attributed to IFRS, rather than to coinciding global developments.

In addition to time controls, country-type fixed effects are introduced in the models related to H2 and H3. These account for structural differences between countries: most notably the distinction between "disciplined" and "undisciplined" regulatory environments. Such fixed effects control for persistent institutional characteristics, including the strength of legal enforcement, regulatory oversight, and investor protection frameworks. This helps avoid misattribution of the effects of longstanding national features to IFRS implementation.

Moreover, models testing H1 and H2 introduce group-level dummy variables (such as G1, G2, G3) to account for differences between clusters of countries, including varying stages of IFRS adoption or levels of institutional readiness. These group identifiers are also interacted with IFRS to examine how its effects vary across contexts. In more advanced specifications, the models incorporate interaction terms with sector characteristics and timing to capture whether IFRS effects are stronger in high-transparency industries or in forecasts made closer to earnings announcements. While these are not control variables in the strictest sense, they play a moderating role, sharpening the precision of the estimated treatment effects.

Building on Byard, Li, and Yu (2011), who introduced the country classification based on enforcement strength and IFRS proximity, this study extends their framework by applying a reverse Difference-in-Differences (DiD-in-reverse) model within a financial-year-level event study design. This methodological innovation allows us to capture both pre- and post-adoption dynamics, using IFRS-like countries as a benchmark group.

4. Empirical results

This study analyzes the impact of regulation on analysts' earnings estimates. First, we assess whether estimates' dispersion and revision are positively or negatively affected by IFRS implementation. Second and third, we evaluate how the impact of IFRS on forecast dispersion and revision was differentiated according to the level of legal enforcement in each country.

4.1 Impact of IFRS on estimates' dispersion and revision (H1a and H1b)

There is a necessity of controlling for financial years in the analysis due to the influence of major economic shocks, namely the dot-com bubble, the subprime crisis, and the COVID-19 pandemic. These events had substantial effects on both forecast dispersion and quality. To isolate the effect of IFRS adoption from these broader macroeconomic disturbances, the model includes year-fixed effects. This approach ensures that variations in estimates are not falsely attributed to regulatory change when they may be due to crisis-driven market volatility.

formula (1)

$Y_{i,t} = \alpha$ (intersept) + λt (fixed year effect) + β [IFRS]+$\varepsilon_{i,t}$

Table 1 Impact of IFRS on earning forecast dispersion

Variables	Value	Standard error	t
intercept	8,7%	0,24%	35,79***
IFRS	0,7%	0,36%	1,95*
FY-1994	-0,3%	0,76%	-0,42
FY-1995	1,1%	0,68%	1,6
FY-1996	-0,9%	0,64%	-1,34
FY-1997	0,3%	0,44%	0,76
FY-1998	-0,1%	0,36%	-0,14
FY-1999	0,7%	0,34%	2,19**
FY-2000	2,3%	0,31%	7,37***
FY-2001	3,4%	0,30%	11,32***
FY-2002	3,2%	0,29%	10,91***
FY-2003	2,3%	0,29%	7,89***
FY-2004	0,4%	0,28%	1,49
FY-2005	-0,9%	0,20%	-4,58***
FY-2006	-0,7%	0,20%	-3,53***
FY-2007	-0,8%	0,19%	-3,89***
FY-2008	0,0%	0,19%	0,07
FY-2009	3,0%	0,21%	13,91***
FY-2010	0,3%	0,20%	1,64
FY-2011	-1,3%	0,19%	-6,53***
FY-2012	-0,9%	0,18%	-5,07***
FY-2013	-1,7%	0,18%	-9,37***
FY-2014	-1,8%	0,18%	-10,12***
FY-2015	-1,6%	0,18%	-9,13***
FY-2016	-1,9%	0,18%	-10,41***
FY-2017	-1,9%	0,18%	-10,43***
FY-2018	-2,1%	0,18%	-11,4***
FY-2019	-1,6%	0,18%	-8,87***
FY-2020	1,7%	0,19%	8,9***
FY-2021	0,0%	0,00%	
FY-2022	-0,3%	0,18%	-1,42

***, ** and * represent significance at the 1%, 5% and 10% respectively

Table 2 Impact of IFRS on earning forecast revision

Variables	Value	Standard error	t
intercept	10,6%	0,20%	54,08***
IFRS	8,8%	0,31%	28,92***
FY-1994	3,4%	0,37%	9,24***
FY-1995	6,2%	0,31%	19,71***
FY-1996	3,0%	0,29%	10,19***
FY-1997	2,7%	0,27%	10,26***
FY-1998	4,5%	0,25%	17,72***
FY-1999	4,9%	0,25%	19,61***
FY-2000	7,2%	0,24%	29,4***
FY-2001	9,9%	0,24%	41,6***
FY-2002	9,0%	0,24%	38,07***
FY-2003	6,8%	0,24%	28,94***
FY-2004	4,1%	0,23%	17,62***
FY-2005	-4,0%	0,18%	-22,57***
FY-2006	-4,9%	0,18%	-27,95***
FY-2007	-5,9%	0,18%	-33,87***
FY-2008	1,4%	0,17%	7,97***
FY-2009	1,3%	0,17%	7,74***
FY-2010	-2,0%	0,17%	-12,19***
FY-2011	-3,2%	0,16%	-19,59***
FY-2012	-4,8%	0,16%	-29,55***
FY-2013	-4,6%	0,16%	-28,49***
FY-2014	-6,2%	0,16%	-38***
FY-2015	-5,6%	0,16%	-34,34***
FY-2016	-6,1%	0,16%	-37,71***
FY-2017	-6,5%	0,16%	-39,87***
FY-2018	-6,1%	0,16%	-37,57***
FY-2019	-6,4%	0,16%	-38,91***
FY-2020	3,7%	0,17%	22,32***
FY-2021	0,0%	0,00%	
FY-2022	-1,8%	0,16%	-11,26***

***, ** and * represent significance at the 1%, 5% and 10% respectively

The first empirical test investigates whether IFRS adoption had a straightforward global effect on forecast dispersion and estimation error. Using a fixed-effects model with IFRS as the treatment variable, the analysis shows that both dispersion and forecast error worsened following IFRS implementation when considered in aggregate. These results suggest that, contrary to expectations, IFRS may not have uniformly enhanced analysts' ability to interpret financial data, possibly due to transitional uncertainty, variation in implementation quality, or differences in disclosure practices across countries.

Table 3 Three groups of countries by Byard, Li, and Yu (2011)

Group	Description	Countries
G1 = Group 1 = HiLawLowIFRSDiff	High law enforcement and low difference with IFRS = "IFRS countries"	IRE, NL, NO, SE, **UK**
G2 = Group2 = HiLawHiIFRSDiff	Hi law enforcement and high difference with IFRS = "Disciplined countries"	AU, DK, FI, **DE**, LU, CH
G3 = Group3 = LoLawHiIFRSDiff	Lo law enforcement and high difference with IFRS = "Undisciplined countries"	BE, CZ, **FR**, GR, HU, IT, PL, PT, ES

Table 3 introduces a more granular approach by categorizing countries based on two dimensions: the similarity of their pre-IFRS accounting standards to IFRS, and the strength of their legal enforcement frameworks. The classification yields three groups. Group 1 includes countries like the UK, where national GAAP already aligned closely with IFRS and legal systems were robust. Group 2 represents countries such as Germany that had strong legal enforcement but significant differences between their local GAAP and IFRS. Group 3, including countries like France, encompasses those with both low legal enforcement and accounting rules previously misaligned with IFRS.

The rationale for this grouping is supported by Byard, Li, and Yu (2011), who showed that the effects of IFRS adoption on the analyst information environment, particularly in terms of forecast accuracy and dispersion, were stronger in countries with higher pre-existing accounting quality and strict enforcement. Their findings emphasize that IFRS is not a one-size-fits-all solution; its effectiveness is conditional on the legal and regulatory context in which it is implemented.

This classification sets the empirical framework for the analysis of difference that follows, using Group 1 as the benchmark to compare the differential evolution of forecast dispersion and accuracy across the other groups.

While Formula (1) captures the average global effect of IFRS adoption, Formula (2) introduces a more nuanced specification by accounting for cross-country heterogeneity in the institutional and regulatory environments. The revised model is expressed as:

formula (2)

$Y_{i,t} = \text{constante } \alpha + \lambda t \text{ (fixed year effect)} + \beta 1 * G1 + \beta 2 * G2 + \beta 3 * G3 + \varepsilon i,t$

Here, the outcome variable Yi,t and the year-fixed effects λt retain the same meanings as in the previous model, ensuring that macroeconomic shocks are still adequately controlled. However, instead of using a single IFRS dummy variable, the model introduces three group indicators (G1, G2, and G3) that categorize countries based on two dimensions: the degree of similarity between their pre-IFRS accounting standards and IFRS, and the strength of their legal enforcement mechanisms.

Table 4 Impact of country grouping on earning forecast dispersion

Variables	Value	Standard error	t
intercept	9,33%	0,05%	176,19***
FY-1994	-1,33%	0,76%	-1,74*
FY-1995	0,40%	0,67%	0,59
FY-1996	-1,37%	0,62%	-2,2**
FY-1997	-0,25%	0,39%	-0,65
FY-1998	-0,60%	0,29%	-2,08**
FY-1999	0,18%	0,25%	0,74
FY-2000	1,74%	0,20%	8,56***
FY-2001	2,92%	0,19%	15,66***
FY-2002	2,85%	0,18%	16,08***
FY-2003	2,00%	0,17%	11,58***
FY-2004	0,19%	0,16%	1,16
FY-2005	-0,53%	0,15%	-3,44***
FY-2006	-0,40%	0,16%	-2,61***
FY-2007	-0,46%	0,15%	-3,11***
FY-2008	0,27%	0,15%	1,78*
FY-2009	3,12%	0,17%	18,42***
FY-2010	0,71%	0,16%	4,42***
FY-2011	-0,79%	0,15%	-5,37***
FY-2012	-0,49%	0,13%	-3,7***
FY-2013	-1,33%	0,13%	-9,99***
FY-2014	-1,48%	0,13%	-11,25***
FY-2015	-1,31%	0,13%	-9,94***
FY-2016	-1,54%	0,13%	-11,65***
FY-2017	-1,57%	0,13%	-11,95***
FY-2018	-1,79%	0,13%	-13,45***
FY-2019	-1,33%	0,13%	-9,93***
FY-2020	1,99%	0,14%	13,97***
FY-2021	0,24%	0,13%	1,76*
FY-2022	-0,03%	0,13%	-0,21
IFRS countries G1	-1,31%	0,04%	-33,67***
Disciplined countries G2	0,70%	0,04%	15,57***
Undisciplined countries G3	0,61%	0,04%	13,89***

***, ** and * represent significance at the 1%, 5% and 10% respectively

Table 5 Impact of country grouping on earning forecast revision

Variables	Value	Standard error	t
intercept	16,2%	0,03%	549,42***
FY-1994	-2,5%	0,33%	-7,32***
FY-1995	0,5%	0,26%	1,79*
FY-1996	-2,6%	0,23%	-11,24***
FY-1997	-2,9%	0,20%	-14,55***
FY-1998	-1,0%	0,18%	-5,43***
FY-1999	-0,5%	0,17%	-3,18***
FY-2000	1,7%	0,16%	10,66***
FY-2001	4,5%	0,15%	29,75***
FY-2002	3,5%	0,15%	24,31***
FY-2003	1,4%	0,14%	9,58***
FY-2004	-1,3%	0,14%	-9,55***
FY-2005	-0,6%	0,13%	-4,73***
FY-2006	-1,5%	0,13%	-11,79***
FY-2007	-2,6%	0,13%	-19,68***
FY-2008	4,7%	0,13%	36,8***
FY-2009	4,7%	0,13%	37,45***
FY-2010	1,4%	0,12%	11,64***
FY-2011	0,3%	0,11%	2,27**
FY-2012	-1,3%	0,11%	-11,53***
FY-2013	-1,2%	0,11%	-10,57***
FY-2014	-2,8%	0,11%	-24,3***
FY-2015	-2,2%	0,11%	-19,25***
FY-2016	-2,7%	0,11%	-24,25***
FY-2017	-3,1%	0,11%	-27,24***
FY-2018	-2,8%	0,11%	-24,21***
FY-2019	-3,0%	0,12%	-26,06***
FY-2020	7,1%	0,12%	60,14***
FY-2021	3,3%	0,12%	28,82***
FY-2022	1,5%	0,11%	13,25***
IFRS Countries G1	-1,5%	0,03%	-46,44***
Disciplined countries G2	1,3%	0,04%	34,13***
Undisciplined countries G3	0,3%	0,04%	8,06***

***, ** and * represent significance at the 1%, 5% and 10% respectively

Building on the grouping, tables 4 and 5 present an estimation focused on forecast dispersion and revision. The analysis contrasts the three groups' levels while abstracting from the timing of IFRS adoption. The results show that “IFRS countries” (group1) have significantly better level of dispersion and estimate errors than the two other groups.

4.2 H2a IFRS has a differentiated impact on estimates dispersion according to country law enforcement

In this study, we employ a Difference-in-Differences in Reverse (DiD in reverse) methodology, as outlined by Kim and Lee (2018), which differs from the traditional DiD approach by the nature of treatment timing and group classification. Unlike the usual DiD where a control group remains untreated throughout the period and the treatment group switches from untreated to treated, DiD in reverse is characterized by a control group that is always treated, while the treatment group is only treated later, effectively “switching” into treatment. Kim and Lee (2018) explain that “the DiD in reverse (DDR) identifies pre-treatment effects rather than post-treatment effects,” reversing the usual timing interpretation of treatment effects (p. 706). This inversion requires a distinct identification strategy: instead of verifying parallel trends in the untreated state before treatment (as in standard DiD), DDR demands assessing parallel trends after both groups are treated (post-treatment periods). The authors further note that while the estimation procedure remains similar to DiD, the interpretation changes fundamentally because DDR captures effects during the pre-switch period for the switched group rather than post-switch effects for the treated group (Kim & Lee, 2018, p. 710). This approach is particularly suited to settings where policy or treatment is phased in across units over time, such as staggered adoption of regulations or laws, making DDR a powerful tool for evaluating causal effects when the “control” group does not remain untreated. By leveraging this methodology, our analysis accurately captures the transitional dynamics associated with the introduction of IFRS adoption across different jurisdictions.

From the observation of table 5 above can be drawn a setup of a DiD in reverse analysis used to assess how the impact of IFRS adoption varies across countries grouped by legal enforcement and accounting system proximity. Group 1, composed of countries with strong enforcement and accounting rules already close to IFRS (e.g., the UK), serves as the benchmark group in the analysis. Formally, a standard difference-in-differences (DiD) design compares initially similar groups that diverge following a treatment, allowing researchers to estimate the effect of that treatment. In our case, however, the logic is inverted: the groups are assumed to be dissimilar prior to the treatment, with IFRS expected to reduce these differences, leading to greater homogeneity post-adoption. Moreover,

the inclusion of country fixed effects helps account for the initial heterogeneity between countries with differing levels of enforcement and alignment with IFRS, thereby enabling a valid DiD in reverse approach.

The model should introduce an IFRS dummy variable, which captures the timing of the reform by distinguishing observations before and after the IFRS implementation date of January 1, 2005. It also includes interaction terms between this dummy and country group dummies, forming the key variables of interest: IFRS × Group2 and IFRS × Group3. These interaction terms capture the evolution of the difference in dispersion or forecast accuracy between Group 2 (disciplined but previously divergent from IFRS) and Group 3 (undisciplined and divergent) compared to the reference group.

The strength of this setup lies in its ability to isolate not just whether IFRS had an impact, but whether it had a differentiated impact depending on pre-existing institutional conditions. If these interaction terms are statistically significant, it suggests that the reform's effects are not homogeneous across legal or accounting contexts, but rather shaped by the institutional readiness of each country.

Formula (3)

$$Y_{i,t} = \text{constante } \alpha + \delta i \text{ (fixed country type effect: G2 disciplined Or G3 undisciplined)} + \lambda t \text{ (fixed year effect)} + \beta 2[G2 \times IFRS] + \beta 3[G3 \times IFRS] + \varepsilon i,t$$

This regression model is designed to evaluate the differential impact of IFRS adoption on earnings estimate dispersion, where $Y_{i,t}$ represents the level of dispersion for firm i in year t.

The model includes:

α: a constant term capturing the average baseline level of dispersion.

δi: fixed effects for country type, distinguishing between disciplined and undisciplined institutional environments. This controls for structural, time-invariant differences across country groups.

λt: year fixed effects, controlling for global time shocks (e.g., financial crises) that could influence dispersion across all countries.

$\beta 2,t$ (G2 × IFRS) and $\beta 3,t$ (G3 × IFRS): interaction terms that capture the time-varying treatment effect of IFRS adoption for Group 2 and Group 3 countries, respectively, using Group 1 as the implicit reference. These coefficients measure whether the evolution in dispersion post-IFRS differs significantly from the benchmark trajectory observed in Group 1 countries.

$\varepsilon i,t$: the error term accounting for unexplained variance.

By interacting group identifiers with the IFRS dummy, the model isolates whether the effect of IFRS varies by institutional context, specifically the level of enforcement and prior alignment with IFRS. A significant and negative coefficient would suggest that IFRS contributed to reducing dispersion in that group, while a non-significant or positive coefficient might indicate limited or adverse effects. This specification thus provides a nuanced test of Hypothesis 2, which suggests that IFRS has a differentiated impact on forecast dispersion depending on country-level enforcement quality.

Table 6 Impact of regulation on earning forecast dispersion differentiated according to country law enforcement

Variables	Value	Standard error	t
intercept	7,9%	0,07%	120,09***
Disciplined countries G2	3,7%	0,18%	20,42***
Undisciplined countries G3	2,0%	0,16%	12,31***
FY-1994	-1,7%	0,77%	-2,16**
FY-1995	0,0%	0,68%	-0,06
FY-1996	-1,7%	0,63%	-2,77***
FY-1997	-0,7%	0,39%	-1,7*
FY-1998	-1,0%	0,30%	-3,42***
FY-1999	-0,2%	0,26%	-0,76
FY-2000	1,4%	0,21%	6,73***
FY-2001	2,6%	0,19%	13,49***
FY-2002	2,6%	0,18%	14,15***
FY-2003	1,7%	0,18%	9,72***
FY-2004	-0,1%	0,17%	-0,32
FY-2005	-0,3%	0,16%	-2,12**
FY-2006	-0,2%	0,16%	-1,26
FY-2007	-0,3%	0,15%	-1,69*
FY-2008	0,5%	0,15%	3,08***
FY-2009	3,3%	0,17%	19,21***
FY-2010	0,9%	0,16%	5,58***
FY-2011	-0,6%	0,15%	-3,92***
FY-2012	-0,3%	0,14%	-2,1**
FY-2013	-1,1%	0,14%	-8,17***
FY-2014	-1,3%	0,14%	-9,37***
FY-2015	-1,1%	0,14%	-8,1***
FY-2016	-1,3%	0,14%	-9,77***
FY-2017	-1,4%	0,14%	-10***
FY-2018	-1,6%	0,14%	-11,44***
FY-2019	-1,1%	0,14%	-8,06***
FY-2020	2,2%	0,15%	15,03***
FY-2021	0,5%	0,14%	3,27***
FY-2022	0,2%	0,14%	1,38
IFRS*Disciplined countries G2	-2,0%	0,20%	-10,27***
IFRS*Undisciplined countries G3	-0,1%	0,18%	-0,53

***, ** and * represent significance at the 1%, 5% and 10% respectively

This regression table analyzes the impact of IFRS adoption on analyst forecast dispersion, accounting for both country-type and time-specific effects. The dependent variable is forecast dispersion, and the model includes fixed effects for country type and year, as well as interaction terms to capture the differentiated effects of IFRS across institutional contexts.

The top portion of the table reflects country-type fixed effects. It shows that, prior to IFRS adoption, countries classified as disciplined but initially divergent from IFRS (HiLawHiIFRSDiff) exhibited significantly higher levels of dispersion than the benchmark group (HiLawLoIFRSDiff), with a coefficient of 3.7% that is statistically significant. Undisciplined countries with divergent pre-IFRS standards (LoLawHiIFRSDiff) also had elevated dispersion, though the coefficient is smaller at 2.0%. These results confirm that forecast dispersion varied meaningfully across institutional settings before the implementation of IFRS.

The middle of the table presents year fixed effects, which account for macroeconomic events that could influence analyst behavior. Spikes in dispersion are observed during major crises: the dot-com bubble (particularly 2001 and 2002), the subprime mortgage crisis (with a marked rise in 2009), and the COVID-19 pandemic in 2020. These effects are all statistically significant and underscore the importance of controlling for time-specific volatility when evaluating regulatory impacts.

The bottom portion of the table contains the interaction terms between country group and IFRS adoption. For disciplined countries (G2) with previously divergent standards (HiLawHiIFRSDiff), IFRS led to a statistically significant reduction in dispersion, with a coefficient of –2.0%. This indicates that IFRS helped harmonize financial information and improve consensus among analysts in environments with strong enforcement. However, for undisciplined countries (LoLawHiIFRSDiff=G3), the IFRS effect is minimal and statistically insignificant (–0.1% with a p-value of 59.41%), suggesting that without robust institutional backing, the benefits of IFRS are unlikely to materialize.

Overall, the findings support the notion that IFRS adoption has a differentiated impact on forecast dispersion, conditional on the strength of a country's legal and regulatory framework. In well-enforced environments, IFRS reduces informational noise and enhances analyst agreement. In weaker systems, by contrast, the reform fails to deliver the same improvements.

4.3 H2b IFRS has a differentiated impact on estimates revision according to country law enforcement

Table 7 Impact of regulation on earning forecast revision differentiated according to country law enforcement

Variables	*Value*	*Standard error*	*t*
intercept	*14,50%*	*0,04%*	*328,22****
Disciplined countries G2	*5,43%*	*0,14%*	*39,84****
Undisciplined countries G3	*2,11%*	*0,12%*	*17,06****
FY-1994	*-3,10%*	*0,34%*	*-9,1****
FY-1995	*-0,15%*	*0,27%*	*-0,57*
FY-1996	*-3,15%*	*0,24%*	*-13,25****
FY-1997	*-3,50%*	*0,20%*	*-17,29****
FY-1998	*-1,50%*	*0,18%*	*-8,27****
FY-1999	*-1,11%*	*0,18%*	*-6,31****
FY-2000	*1,10%*	*0,17%*	*6,64****
FY-2001	*3,86%*	*0,16%*	*24,73****
FY-2002	*2,96%*	*0,15%*	*19,47****
FY-2003	*0,81%*	*0,15%*	*5,42****
FY-2004	*-1,91%*	*0,15%*	*-13,14****
FY-2005	*-0,29%*	*0,14%*	*-2,13***
FY-2006	*-1,20%*	*0,13%*	*-8,94****
FY-2007	*-2,20%*	*0,13%*	*-16,55****
FY-2008	*5,08%*	*0,13%*	*38,57****
FY-2009	*5,06%*	*0,13%*	*39,21****
FY-2010	*1,73%*	*0,12%*	*14,22****
FY-2011	*0,61%*	*0,12%*	*5,25****
FY-2012	*-0,93%*	*0,12%*	*-8,12****
FY-2013	*-0,85%*	*0,12%*	*-7,21****
FY-2014	*-2,40%*	*0,12%*	*-20,48****
FY-2015	*-1,82%*	*0,12%*	*-15,55****
FY-2016	*-2,35%*	*0,12%*	*-20,32****
FY-2017	*-2,72%*	*0,12%*	*-23,27****
FY-2018	*-2,40%*	*0,12%*	*-20,35****
FY-2019	*-2,63%*	*0,12%*	*-22,18****
FY-2020	*7,43%*	*0,12%*	*61,48****
FY-2021	*3,71%*	*0,12%*	*31,12****
FY-2022	*1,89%*	*0,12%*	*16,01****
*IFRS*Disciplined countries G2*	*-3,25%*	*0,15%*	*-21,43****
*IFRS*Undisciplined countries G3*	*-0,26%*	*0,14%*	*-1,86**

****, ** and * represent significance at the 1%, 5% and 10% respectively*

This table presents the regression results analyzing the impact of IFRS adoption on forecast errors, using the same DiD in reverse model previously applied to forecast dispersion. The dependent variable in this case is forecast error, and the model includes fixed effects for country type (disciplined vs. undisciplined), year, and interaction terms between IFRS adoption and country group.

At the top of the table, the fixed country-type effects reveal that disciplined countries originally had significantly higher forecast errors compared to the reference group (countries with legal systems aligned with IFRS), with a coefficient of 5.43% ($p < 0.01$). Undisciplined countries (LoLawHiIFRSDiff) also show elevated forecast errors relative to the baseline, though to a lesser extent, at 2.11%, which remains statistically significant. This suggests that before the implementation of IFRS, analysts in disciplined countries may have struggled more with interpreting financial statements, possibly due to the greater divergence between local GAAP and IFRS.

The fixed year effects capture macroeconomic shocks that influenced analyst performance over time. The data confirms major spikes in forecast error during known periods of market turbulence: the dot-com bubble (notably in 2001 with a 3.86% increase), the subprime crisis (5.06% in 2008), and the COVID-19 pandemic (4.73% in 2020). These year effects are statistically significant and highlight the importance of controlling for external events that disrupt forecasting accuracy.

The lower portion of the table includes the key interaction terms of interest. For disciplined countries, IFRS adoption is associated with a statistically significant reduction in forecast errors (–3.25%, $p < 0.01$), indicating that stronger legal enforcement and initially divergent accounting standards allowed these countries to benefit more fully from IFRS reforms. In contrast, for undisciplined countries, the effect of IFRS is much weaker and only marginally significant at the 10% level (–0.26%, $p = 6.22\%$). While this suggests a slight improvement, the result is not robust and reflects the limited effectiveness of IFRS in environments where enforcement is weak or compliance is superficial.

Overall, the regression confirms the core insight from the dispersion analysis: IFRS improves the quality of analysts' forecasting environments, but only where institutional conditions allow it to function as intended. In countries with weak enforcement, IFRS adoption alone is insufficient to meaningfully enhance forecast accuracy.

Before IFRS adoption, countries with stronger enforcement mechanisms, such as Germany, tended to exhibit higher analyst forecast error and dispersion. This initially seems counterintuitive because stronger enforcement is generally associated with higher accounting quality and more reliable information. However, as noted by Byard, Li, and Yu (2011), "the larger forecast errors and dispersion in these countries before IFRS adoption largely reflect the greater initial mispricing and uncertainty in

the analysts' information environment". In other words, analysts in such countries faced more severe challenges in forecasting due to complex regulatory environments and legacy accounting standards, which may have induced more cautious or heterogeneous expectations.

This interpretation is consistent with findings by Liao, Sellhorn, and Skaife (2012), who observe that "countries with better enforcement regimes often showed larger initial forecast errors and dispersion because analysts were responding to more stringent but complex reporting requirements under national GAAP, which increased the challenge of forming consensus forecasts." They further argue that "the post-IFRS reduction in forecast error and dispersion is therefore driven more by the initial higher baseline of error and heterogeneity, rather than solely by enforcement improvements".

Additionally, Campa and Donnelly (2016) highlight that "the magnitude of the reduction in analysts' forecast errors after IFRS adoption is closely related to the initial level of earnings quality and forecast difficulty in the pre-adoption period rather than enforcement quality per se." This suggests that IFRS adoption provided a standardizing effect that disproportionately benefited countries where the initial informational environment was more challenging.

Overall, these studies imply that the observed improvements in forecast accuracy and consensus after IFRS are not purely a function of enforcement quality but rather a consequence of reducing the initial informational disadvantage or forecast difficulty, which was greater in countries with stronger enforcement but more complex legacy systems.

4.4 H3a and H3b: The causal effects of IFRS adoption on analysts' forecast behavior are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

To assess the stability and reliability of the estimated effects of IFRS adoption on analysts' forecast behavior, a series of robustness tests (see section 6.1) were conducted focusing on window sensitivity. These test show that the choice of temporal estimation windows around the 2005 reform year influences the results. Given that regulatory impacts may be masked or distorted by macroeconomic shocks when using broad timeframes, the analysis compares outcomes across short (6-year) and long (10-year) windows.

To mitigate the limitation of the window sensitivity, this study implements a financial-year-level event study analysis around the IFRS adoption, measuring annual deviations from a control group (Group 1:

countries with high enforcement and low IFRS divergence). This method tracks the evolution of dispersion and forecast error over time for "treated" country groups (G2 and G3) relative to the benchmark.

An event study analysis is a methodology typically used to measure the impact of an event (here, IFRS adoption) by estimating abnormal changes (e.g., in forecast dispersion or error) in specific event windows. In our design, the “event” is the mandatory IFRS implementation in 2005, and the outcomes are measured annually relative to a stable benchmark (G1). This framework helps precisely localize the timing of the treatment effect and isolate it from broader macroeconomic fluctuations. Importantly, the design of the study remains a difference-in-differences (DiD) framework, as it estimates the differential evolution of treated versus control groups, before and after IFRS adoption. It is both an event study (with annual time-varying coefficients) and a DiD (due to its reliance on treatment-control comparisons).

Results of the Event Study:

Table 8 Impact of regulation on earning forecast dispersion

Impact of regulation on dispersion

Financial Year "event study" analysis of country difference to IFRS (G1)

Disciplined

Source	Valeur	Pr > |t|
HiLawHilFRSDiff*FY-1994	0,1%	97,38%
HiLawHilFRSDiff*FY-1995	0,8%	64,77%
HiLawHilFRSDiff*FY-1996	2,7%	8,85%
HiLawHilFRSDiff*FY-1997	2,5%	**1,07%**
HiLawHilFRSDiff*FY-1998	0,4%	58,82%
HiLawHilFRSDiff*FY-1999	0,5%	42,43%
HiLawHilFRSDiff*FY-2000	0,6%	27,41%
HiLawHilFRSDiff*FY-2001	1,3%	**0,66%**
HiLawHilFRSDiff*FY-2002	1,6%	**0,06%**
HiLawHilFRSDiff*FY-2003	1,2%	**0,59%**
HiLawHilFRSDiff*FY-2004	1,5%	**0,05%**
HiLawHilFRSDiff*FY-2005	-0,9%	**2,30%**
HiLawHilFRSDiff*FY-2006	-0,3%	38,36%
HiLawHilFRSDiff*FY-2007	-0,9%	**1,29%**
HiLawHilFRSDiff*FY-2008	-0,7%	5,54%
HiLawHilFRSDiff*FY-2009	0,0%	92,33%
HiLawHilFRSDiff*FY-2010	1,1%	**0,64%**
HiLawHilFRSDiff*FY-2011	-0,1%	85,20%
HiLawHilFRSDiff*FY-2012	-0,8%	**1,12%**
HiLawHilFRSDiff*FY-2013	-0,5%	10,24%
HiLawHilFRSDiff*FY-2014	-0,3%	29,20%
HiLawHilFRSDiff*FY-2015	-0,5%	10,38%
HiLawHilFRSDiff*FY-2016	-1,2%	**0,04%**
HiLawHilFRSDiff*FY-2017	-1,0%	**0,30%**
HiLawHilFRSDiff*FY-2018	-1,4%	**< 0,01%**
HiLawHilFRSDiff*FY-2019	-0,2%	52,82%
HiLawHilFRSDiff*FY-2020	-1,7%	**< 0,01%**
HiLawHilFRSDiff*FY-2021	-1,9%	**< 0,01%**
HiLawHilFRSDiff*FY-2022	-1,7%	**< 0,01%**

Undisciplined

Source	Valeur	Pr > |t|
LoLawHilFRSDiff*FY-1994	1,7%	45,69%
LoLawHilFRSDiff*FY-1995	1,2%	46,84%
LoLawHilFRSDiff*FY-1996	-2,2%	12,66%
LoLawHilFRSDiff*FY-1997	-1,3%	16,16%
LoLawHilFRSDiff*FY-1998	-1,3%	5,99%
LoLawHilFRSDiff*FY-1999	-0,5%	42,81%
LoLawHilFRSDiff*FY-2000	-0,3%	45,54%
LoLawHilFRSDiff*FY-2001	0,3%	51,87%
LoLawHilFRSDiff*FY-2002	1,2%	**0,50%**
LoLawHilFRSDiff*FY-2003	0,5%	22,17%
LoLawHilFRSDiff*FY-2004	0,1%	79,26%
LoLawHilFRSDiff*FY-2005	-0,7%	**4,30%**
LoLawHilFRSDiff*FY-2006	-1,4%	**0,01%**
LoLawHilFRSDiff*FY-2007	-0,2%	50,01%
LoLawHilFRSDiff*FY-2008	-1,0%	**0,56%**
LoLawHilFRSDiff*FY-2009	-0,1%	85,87%
LoLawHilFRSDiff*FY-2010	0,9%	**3,15%**
LoLawHilFRSDiff*FY-2011	0,8%	**3,77%**
LoLawHilFRSDiff*FY-2012	0,2%	54,25%
LoLawHilFRSDiff*FY-2013	0,2%	48,44%
LoLawHilFRSDiff*FY-2014	0,9%	**0,47%**
LoLawHilFRSDiff*FY-2015	0,5%	13,77%
LoLawHilFRSDiff*FY-2016	0,5%	10,61%
LoLawHilFRSDiff*FY-2017	-0,2%	48,59%
LoLawHilFRSDiff*FY-2018	0,3%	42,79%
LoLawHilFRSDiff*FY-2019	0,2%	54,33%
LoLawHilFRSDiff*FY-2020	-0,1%	85,43%
LoLawHilFRSDiff*FY-2021	0,3%	37,73%
LoLawHilFRSDiff*FY-2022	-0,3%	31,08%

Table 9 Impact of regulation on earning forecast revision

Impact of regulation on forecast error

Financial Year "event study" analysis of country difference to IFRS (G1)

Disciplined

Source	Valeur	Pr > |t|
HiLawHilFRSDiff*FY-1994	-0,30%	76,36%
HiLawHilFRSDiff*FY-1995	2,26%	**0,14%**
HiLawHilFRSDiff*FY-1996	-0,40%	52,91%
HiLawHilFRSDiff*FY-1997	2,36%	**< 0,01%**
HiLawHilFRSDiff*FY-1998	0,06%	89,56%
HiLawHilFRSDiff*FY-1999	0,62%	14,97%
HiLawHilFRSDiff*FY-2000	0,47%	24,43%
HiLawHilFRSDiff*FY-2001	6,46%	**< 0,01%**
HiLawHilFRSDiff*FY-2002	3,45%	**< 0,01%**
HiLawHilFRSDiff*FY-2003	2,88%	**< 0,01%**
HiLawHilFRSDiff*FY-2004	1,12%	**0,14%**
HiLawHilFRSDiff*FY-2005	-1,35%	**< 0,01%**
HiLawHilFRSDiff*FY-2006	0,26%	43,02%
HiLawHilFRSDiff*FY-2007	-0,36%	25,60%
HiLawHilFRSDiff*FY-2008	-2,28%	**< 0,01%**
HiLawHilFRSDiff*FY-2009	0,15%	61,25%
HiLawHilFRSDiff*FY-2010	0,34%	23,22%
HiLawHilFRSDiff*FY-2011	3,22%	**< 0,01%**
HiLawHilFRSDiff*FY-2012	-0,38%	15,80%
HiLawHilFRSDiff*FY-2013	-0,26%	34,20%
HiLawHilFRSDiff*FY-2014	-1,58%	**< 0,01%**
HiLawHilFRSDiff*FY-2015	-1,51%	**< 0,01%**
HiLawHilFRSDiff*FY-2016	-2,23%	**< 0,01%**
HiLawHilFRSDiff*FY-2017	-0,77%	**0,38%**
HiLawHilFRSDiff*FY-2018	-1,74%	**< 0,01%**
HiLawHilFRSDiff*FY-2019	-1,46%	**< 0,01%**
HiLawHilFRSDiff*FY-2020	-4,30%	**< 0,01%**
HiLawHilFRSDiff*FY-2021	-2,91%	**< 0,01%**
HiLawHilFRSDiff*FY-2022	-1,81%	**< 0,01%**

Undisciplined

Source	Valeur	Pr > |t|
LoLawHilFRSDiff*FY-1994	-0,45%	61,25%
LoLawHilFRSDiff*FY-1995	0,81%	19,47%
LoLawHilFRSDiff*FY-1996	-0,67%	20,99%
LoLawHilFRSDiff*FY-1997	-1,55%	**0,08%**
LoLawHilFRSDiff*FY-1998	-1,09%	**0,68%**
LoLawHilFRSDiff*FY-1999	-0,45%	25,25%
LoLawHilFRSDiff*FY-2000	-1,46%	**< 0,01%**
LoLawHilFRSDiff*FY-2001	1,68%	**< 0,01%**
LoLawHilFRSDiff*FY-2002	3,25%	**< 0,01%**
LoLawHilFRSDiff*FY-2003	0,28%	40,54%
LoLawHilFRSDiff*FY-2004	0,01%	98,66%
LoLawHilFRSDiff*FY-2005	-0,88%	**0,47%**
LoLawHilFRSDiff*FY-2006	-0,51%	9,85%
LoLawHilFRSDiff*FY-2007	-1,03%	**0,10%**
LoLawHilFRSDiff*FY-2008	-0,73%	**1,76%**
LoLawHilFRSDiff*FY-2009	-0,74%	**1,39%**
LoLawHilFRSDiff*FY-2010	2,08%	**< 0,01%**
LoLawHilFRSDiff*FY-2011	2,58%	**< 0,01%**
LoLawHilFRSDiff*FY-2012	1,36%	**< 0,01%**
LoLawHilFRSDiff*FY-2013	1,15%	**< 0,01%**
LoLawHilFRSDiff*FY-2014	1,60%	**< 0,01%**
LoLawHilFRSDiff*FY-2015	0,24%	40,06%
LoLawHilFRSDiff*FY-2016	-1,82%	**< 0,01%**
LoLawHilFRSDiff*FY-2017	-0,96%	**0,06%**
LoLawHilFRSDiff*FY-2018	-1,17%	**< 0,01%**
LoLawHilFRSDiff*FY-2019	-1,15%	**< 0,01%**
LoLawHilFRSDiff*FY-2020	0,09%	74,96%
LoLawHilFRSDiff*FY-2021	1,99%	**< 0,01%**
LoLawHilFRSDiff*FY-2022	-2,42%	**< 0,01%**

forecast error 94-22 flat DiD.xlsm [year DiD]

Tables 8 and 9 clearly show that the dispersion and forecast error gap between treated groups and the benchmark narrows significantly after 2005, especially for disciplined countries. For instance, in the dispersion analysis (Figure 3), G2 countries show consistent reductions of 1.5% to 1.9% from FY-2005 onward, significant at the 1% level, confirming a strong IFRS effect precisely located around the reform year. Similar patterns are observed for forecast error in Figure 4, where post-2005 estimates for G2 are negative and significant, indicating marked improvement.

In contrast, undisciplined countries (G3) exhibit smaller and often non-significant improvements, reinforcing earlier findings (H2a and H2b) that legal enforcement is a necessary condition for IFRS success.

5. Discussion

This study set out to evaluate whether the adoption of International Financial Reporting Standards (IFRS) influenced the behavior of financial analysts, focusing on two key forecast characteristics: forecast quality (i.e., accuracy, as measured by earnings revisions) and forecast dispersion (i.e., disagreement among analysts). The primary objective was to assess not only whether IFRS improved these dimensions of analysts' forecasting performance, but also to examine whether these effects varied systematically across countries and over time. Two central factors guided this inquiry: the strength of national legal enforcement mechanisms, and the timing of IFRS impacts relative to the reform year.

To capture these dimensions, the study employed a multi-stage analytical strategy. First, a global estimation model assessed the overall effect of IFRS adoption on analysts' forecast accuracy and dispersion across the full sample. Second, a reverse difference-in-differences (DiD) framework was used to segment countries into three distinct groups based on their pre-IFRS accounting alignment and enforcement capacity, allowing for the detection of heterogeneous treatment effects: particularly between "disciplined" countries with strong institutions and "undisciplined" countries with weaker enforcement. Finally, to address potential biases related to window sensitivity, a financial-year-level event study DiD design was implemented, allowing for a more precise identification of the temporal concentration of IFRS effects.

The empirical analysis was structured around six hypotheses:

H1a: IFRS adoption had an undifferentiated impact on the dispersion of analysts' earnings estimates.

H1b: IFRS adoption had an undifferentiated impact on the revision of analysts' earnings estimates.

H2a: IFRS have a differentiated impact on forecast dispersion depending on the strength of a country's legal enforcement.

H2b: IFRS have a differentiated impact on forecast revisions depending on the strength of a country's legal enforcement.

H3a: The causal effects of IFRS adoption on analysts' forecast dispersion are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

H3b: The causal effects of IFRS adoption on analysts' forecast revisions are time-dependent and are best isolated through an event-study DiD framework that tracks annual deviations from a high-enforcement benchmark group.

The following discussion compares the empirical results to these hypotheses and to prior literature, with the aim of clarifying whether IFRS reforms generated consistent improvements in analysts' forecasting behavior across contexts, and whether these improvements can be considered robust over time and across institutional settings.

5.1 Discussion of Hypothesis H1a and H1b: Global Impact of IFRS on Forecast Accuracy and Dispersion

The regression analysis reveals that, when measured across all countries in the sample without distinguishing between institutional contexts, the adoption of IFRS was associated with an increase in both forecast dispersion and error. This result stands in contrast to the hypothesis that IFRS, as a harmonizing and transparency-enhancing reform, would lead to improvements in analysts' forecast environments. Rather than converging toward more accurate and consistent estimates, the post-IFRS period, on average, shows greater divergence and lower precision in forecasts. This counterintuitive outcome suggests that the effects of IFRS adoption are not uniform and may be influenced by other moderating factors not captured in the global average.

Such findings point to the importance of contextual variables, including the quality of local enforcement, the transitional complexity of implementing IFRS, and varying degrees of analyst adaptation. The heterogeneity of these conditions likely dilutes any aggregate improvement in forecast properties, masking divergent patterns across jurisdictions.

These results diverge from a significant body of prior research that identifies positive impacts of IFRS adoption on analysts' forecast accuracy and consensus. Byard, Li, and Yu (2011) find that mandatory IFRS adoption across 17 EU countries led to more accurate and less dispersed forecasts, particularly in jurisdictions with strong pre-existing accounting quality and rigorous enforcement. Similarly, Jiao et al. (2012) document a decline in forecast errors and dispersion in the post-IFRS period across 19

European countries. Tan, Wang, and Welker (2011) also report enhanced forecast accuracy and increased analyst following, especially in cases where IFRS represented a significant shift from local GAAP. These positive outcomes are typically attributed to greater comparability, standardized disclosure practices, and increased transparency under IFRS. Petaibanlue, Walker, and Lee (2015), for instance, highlight the role of cross-border comparability in improving forecast quality, while Barniv, Myring, and Westfall (2022) find that analysts with IFRS-specific experience deliver more accurate forecasts, particularly in the period immediately before earnings announcements.

In contrast, the present study's global findings suggest that such benefits do not materialize evenly across the international landscape. One explanation lies in transitional challenges: as countries adopt IFRS, the immediate period following implementation may involve uncertainty, learning costs, and variation in how IFRS is interpreted or enforced. A lack of convergence in enforcement practices can also hinder the effectiveness of IFRS, limiting its intended impact on the information environment. This interpretation is consistent with evidence from Ha et al. (2025), who examine IFRS adoption in Korea and find that during periods when key earnings subtotals such as operating income were left undefined, analysts' forecast coverage declined and forecast accuracy suffered. Their findings emphasize that IFRS-induced discretion, particularly in the absence of regulatory clarity, can temporarily reduce the usefulness of financial disclosures to analysts. This interpretation is further supported by Demmer et al. (2019), who find that only analysts using financial-statement-based models improved their forecast accuracy after IFRS adoption, suggesting that the benefits of IFRS depend not just on reporting changes but also on how effectively analysts incorporate those changes into their forecasting methods. This suggests that the design and oversight of IFRS implementation are just as critical as the standards themselves in shaping forecast outcomes.

Taken together, the discrepancy between the current empirical results and the more optimistic findings in the literature reinforces the importance of analyzing IFRS adoption in a context-sensitive manner, rather than assuming uniform benefits across all jurisdictions and time periods.

5.2 Discussion of Hypothesis H2a: IFRS and Dispersion, the Moderating Role of Legal Enforcement

The DiD in reverse-analysis provides strong evidence that the impact of IFRS on forecast dispersion is conditional on the quality of a country's legal enforcement environment. Countries classified as "disciplined" (Group 2), those with strong enforcement frameworks but initially divergent from IFRS, experienced a statistically significant reduction in analyst dispersion following the adoption of IFRS.

In contrast, “undisciplined” countries (Group 3), characterized by weaker legal enforcement, displayed no significant change in dispersion levels post-IFRS. These results confirm that enforcement mechanisms are not peripheral, but rather central to realizing the intended informational benefits of accounting reform.

The findings align closely with a large body of prior research emphasizing the complementary role of institutional enforcement in the effectiveness of IFRS. Byard, Li, and Yu (2011) argue that improvements in analyst forecast environments are more pronounced in countries with both high-quality pre-existing accounting standards and strong legal enforcement. Horton, Serafeim, and Serafeim (2013) reach a similar conclusion, showing that post-IFRS reductions in forecast dispersion were more significant in jurisdictions with robust regulatory infrastructures. He and Lu (2018) also document greater consistency in analyst forecasts in countries offering strong investor protection, reinforcing the notion that institutional strength enhances IFRS outcomes.

Additional support is provided by Aboud, Roberts, and Zalata (2018), whose study of IFRS 8 adoption across the EU finds that forecast accuracy and reliability improved only in countries with strong enforcement regimes. Their findings suggest that high-quality disclosure requirements, such as those introduced under IFRS 8, only translate into better analyst outputs when supported by effective compliance and oversight mechanisms.

This pattern echoes foundational institutional theories, including the work of Leuz et al. (2003), which contends that weak investor protection and legal systems often lead to symbolic adoption of reforms, limiting their practical effect. Houqe et al. (2012) similarly find that the strength of legal institutions shapes whether IFRS adoption leads to improvements in financial reporting and forecasting outcomes.

Compared with Tan, Wang, and Welker (2011), who emphasized the role of IFRS in facilitating foreign analyst coverage, our results demonstrate that the informational benefits of IFRS materialize primarily in disciplined environments through improvements in forecast accuracy and consensus. This distinction highlights that coverage and quality are not necessarily aligned and that enforcement plays a decisive role in converting disclosure comparability into forecast improvements.

Beyond enforcement, the observed heterogeneity in IFRS effectiveness may also reflect temporal and sector-specific factors. Barniv, Myring, and Westfall (2022) demonstrate that analysts with IFRS-specific experience exhibit improved forecast performance, particularly in the periods immediately preceding earnings announcements, a time-sensitive effect that supports the importance of forecast horizon as a moderator. Sectoral differences also emerge in the literature; for example, Dinh et al. (2015) find that in R&D-intensive industries, the complexity introduced by IAS 38 undermines the

comparability of disclosures, thereby increasing forecast disagreement. These insights point toward a multi-layered interaction between IFRS, institutional enforcement, forecast timing, and industry characteristics dimensions further explored in subsequent models (see robustness tests).

The empirical results affirm Hypothesis 2a: the effect of IFRS on forecast dispersion is not universal, but varies significantly according to the institutional quality and enforcement capacity of the adopting country. These findings further underscore that IFRS, while global in scope, produces context-dependent outcomes.

5.3 Discussion of Hypothesis H2b: IFRS and Forecast Accuracy, the Moderating Role of Legal Enforcement

The regression analysis of forecast errors reinforces the central role of legal enforcement in shaping the effectiveness of IFRS adoption. In countries classified as disciplined, those with high enforcement and initially divergent accounting systems (Group 2), the introduction of IFRS led to a statistically significant reduction in forecast error, indicating an improvement in the accuracy of analysts' earnings predictions. In contrast, countries in the undisciplined group (Group 3), with weaker enforcement structures, exhibited only marginal and weakly significant improvements in forecast accuracy. These findings confirm that the informational benefits of IFRS adoption are not equally distributed, and that strong institutional frameworks are essential for enabling analysts to extract decision-useful insights from standardized reporting.

The results align with previous research highlighting the conditional nature of IFRS outcomes. He and Lu (2018) find that analysts were more likely to issue frequent and timely forecasts in the post-IFRS period, particularly in countries where enforcement mechanisms and investor protection were robust. Their findings suggest that regulatory credibility enhances analyst responsiveness and confidence in financial reporting. These findings align with prior evidence from Wen and Chien-Ju (2018), who document that stronger legal frameworks and enforcement mechanisms enhance the informativeness of financial reporting under IFRS. They are also consistent with Li and Zhang (2022), who emphasize that IFRS-related gains in analyst forecast quality are contingent upon the underlying institutional context, particularly the presence of credible enforcement and market discipline.

Further support is provided by Barniv, Myring, and Westfall (2022), who demonstrate that forecast accuracy improves most significantly in short-horizon estimates, those made just before earnings announcements, when analysts operate in IFRS-based environments and have accumulated domain-

specific experience. This dynamic is particularly pronounced in countries with well-developed legal and market institutions, where timely financial information is more likely to be interpreted consistently. Such evidence reinforces the observation that forecast timing and analyst familiarity with IFRS influence forecast quality alongside institutional enforcement.

In terms of sectoral variation, Dinh et al. (2015) provide relevant insight by showing that forecast accuracy deteriorates in R&D-intensive sectors due to the complexity introduced by IFRS, particularly the capitalization of development costs under IAS 38. These findings imply that while IFRS can enhance comparability and clarity in standardized settings, it may introduce noise and interpretive complexity in industries subject to high levels of discretionary accounting. This observation aligns with the present results, where improvements in forecast accuracy post-IFRS were concentrated in higher-transparency sectors and largely absent in more complex reporting environments (see robustness tests).

Overall, the results validate Hypotheses 2a and 2b by showing that the effect of IFRS on forecast accuracy (or revision) is not uniform, but depends on the institutional capacity to enforce standards and the nature of the information environment in which analysts operate. These findings confirm the critical role of enforcement in enabling regulatory reforms to translate into tangible improvements in financial analysis and underscore the limitations of IFRS in jurisdictions lacking robust institutional support.

5.4 Discussion of Hypothesis H3a and H3b: Window Sensitivity of IFRS Effects on Dispersion and Revision

The empirical analysis conducted to test Hypotheses H3a and H3b (that the impact of IFRS on analysts' estimates dispersion and revision is window sensitive) yields strong evidence confirming the critical role of the estimation window in shaping conclusions about IFRS effectiveness.

The robustness tests based on two alternative windows (6 years vs. 10 years) highlight how the length and timing of the observation period can produce divergent findings. When focusing on a shorter 6-year window centered tightly around the 2005 IFRS implementation (i.e., 2002–2007), IFRS is associated with statistically significant reductions in both forecast dispersion (–1.9%) and forecast error (–2.72%). These results support the notion that IFRS improved analysts' information environment in the immediate post-adoption period. In contrast, when the estimation window is extended to a 10-year period (2000–2009), the observed effects become ambiguous and even

contradictory. While dispersion remains negatively associated with IFRS (–1.7%), the coefficient for forecast error switches direction and becomes positive (+6.6%), suggesting an increase in estimation error. This counterintuitive result likely reflects the contaminating influence of macroeconomic shocks such as the dot-com bubble (early 2000s) and the subprime financial crisis (2008–2009), which distort analysts' performance and mask the true impact of IFRS.

These inconsistencies confirm that IFRS effects are not temporally stable and are highly sensitive to the choice of observation window, validating Hypotheses H3a and H3b. They also call into question the reliability of studies that draw conclusions based on arbitrarily long timeframes without controlling for confounding events.

To overcome this limitation, this study adopts a financial-year-level event study design, which addresses window bias by isolating the annual deviation in dispersion and error for treated countries relative to a stable benchmark group (G1). This year-by-year difference-in-differences (DiD) approach retains the core structure of causal inference (comparing treated and control groups) but anchors the analysis to specific years surrounding the regulatory event. This hybrid design retains the strengths of both frameworks: the causal comparison of DiD and the temporal precision of event studies.

The event study results further reinforce the findings from the short-window analysis. For disciplined countries (G2) (those with strong enforcement and high pre-IFRS divergence) dispersion and error decline significantly and persistently after 2005, with effects that are both statistically and economically meaningful. In contrast, undisciplined countries (G3) show little to no improvement, echoing prior findings that institutional enforcement is a necessary condition for regulatory success.

Together, these results demonstrate that the apparent impact of IFRS depends not only on country-specific institutional conditions but also on how and when the analysis is conducted. Studies that overlook the time sensitivity of IFRS effects risk drawing misleading conclusions. The adoption of IFRS represents a structural break, but one whose impact is localized and transitory, necessitating methodological approaches, such as event study DiD frameworks, that can accommodate such temporal specificity.

In summary, the evidence strongly supports H3a and H3b, confirming that the impact of IFRS on analysts' dispersion and revision behavior is not only institutionally contingent but also highly window dependent. This insight carries significant implications for future IFRS research and policy evaluation, underscoring the need for precision in defining the temporal scope of regulatory impact assessments.

5.5 Synthesis and Theoretical Implications

The collective findings support the view that IFRS represents a necessary but not sufficient condition for improving the quality of analysts' information environments. While the adoption of IFRS introduces a standardized framework for financial reporting, its effectiveness is shown to depend critically on the institutional infrastructure in which it is embedded and the temporal lens through which its effects are assessed. These results are consistent with the growing literature that emphasizes the role of enforcement, legal protection, and regulatory oversight in shaping the practical outcomes of global accounting reforms.

The concept of conditional convergence is particularly relevant in interpreting these findings. Conditional convergence refers to the idea that economies or institutions do not necessarily converge to the same level of performance or quality, but rather approach their own steady-state outcomes depending on specific initial conditions or structural factors, such as institutional quality, legal environment, or enforcement mechanisms (Barro & Sala-i-Martin, 1992; Sala-i-Martin, 1996). This interpretation is echoed in Wen and Chien-Ju (2018) and Li and Zhang (2022), both of whom underscore that IFRS is most effective in settings where enforcement, analyst capability, and firm-level incentives align to support transparent reporting and credible forecast interpretation. Applied to accounting standards adoption, this implies that IFRS does not generate uniform improvements across all countries; instead, its benefits are mediated by pre-existing institutional characteristics. In jurisdictions with strong enforcement and credible compliance, analysts can better utilize standardized disclosures, leading to enhanced forecast accuracy and reduced dispersion. Conversely, in weaker enforcement settings, the potential gains from IFRS adoption are diluted, and forecast quality remains largely unchanged.

A distinctive contribution of this analysis lies in its use of a DiD in reverse framework, which departs from the conventional assumption that treatment effects widen post-reform. Instead, this approach highlights pre-existing heterogeneity in forecast behavior across countries and evaluates whether IFRS served to reduce informational asymmetries by promoting convergence. The evidence shows that improvements in forecast quality and dispersion occurred where institutional readiness was high, narrowing the gap between countries post-implementation. This suggests that IFRS functions primarily as a harmonizing mechanism, rather than a direct enhancer of forecast quality on its own. Its value lies in establishing a consistent reporting baseline, which only becomes effective when paired with mechanisms that ensure faithful implementation, disciplined interpretation, and meaningful enforcement.

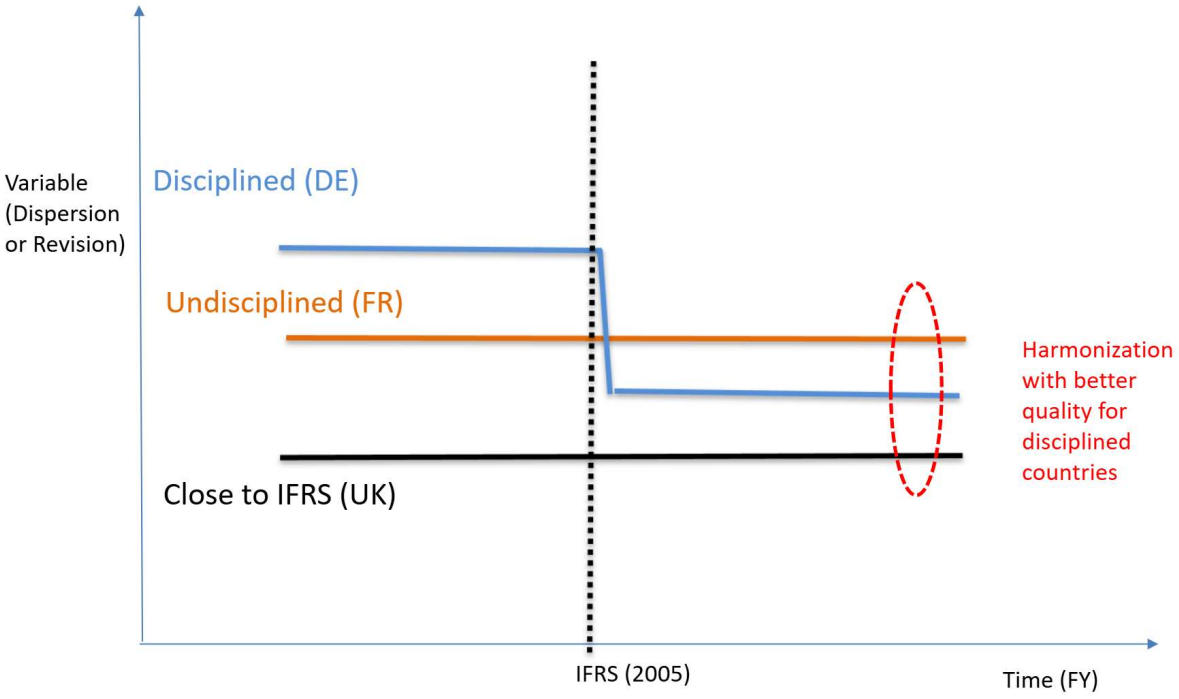
Another key insight concerns the temporal sensitivity of IFRS effects, as revealed in hypotheses H3a and H3b. The robustness checks using alternative observation windows (6 years vs. 10 years) show that the estimated impact of IFRS varies significantly with the length of the estimation period. A shorter window centered on the reform year (2002–2007) captures strong and statistically significant improvements in forecast dispersion and accuracy, while a longer window (2000–2009) yields ambiguous or contradictory results, likely due to confounding macroeconomic shocks such as the dot-com bubble and the subprime crisis. These findings suggest that IFRS benefits are temporally localized, with the most pronounced improvements occurring shortly after adoption, before being obscured by unrelated events in extended timeframes.

To address this window bias, the study introduces a financial-year-level event study design, which combines the temporal granularity of event studies with the causal inference power of a difference-in-differences approach. This hybrid design isolates year-by-year deviations in dispersion and error between treated and benchmark countries, providing a more precise identification of IFRS effects while retaining comparability across groups. The event study confirms that forecast accuracy and consensus improved significantly and persistently in disciplined countries after 2005, whereas undisciplined countries saw little to no change, further reinforcing the role of enforcement and the importance of temporal alignment in empirical design.

Additionally, the findings highlight that the benefits of IFRS are not uniformly distributed across sectors or forecast horizons. As shown in the robustness tests, analysts operating in high-transparency sectors, such as those with more tangible, predictable revenue streams, are better positioned to incorporate IFRS-based disclosures into their forecasts. Conversely, in R&D-intensive industries, the discretion introduced by standards such as IAS 38 may increase interpretive complexity, limiting comparability and contributing to greater dispersion. Similarly, evidence from prior studies and from this analysis suggests that short-horizon forecasts (i.e., those made closer to earnings announcements) benefit more from IFRS than long-horizon forecasts, reflecting both analyst learning curves and market adaptation lags.

In conclusion, the findings of this study illustrate that the success of IFRS in improving forecast quality and reducing dispersion hinges on a combination of institutional enforcement, sectoral context, and temporal design. The dual dependency on both where and when IFRS effects are measured underscores the need for future research to adopt context-aware, time-sensitive frameworks when evaluating regulatory reforms. This integrated approach contributes to a more nuanced understanding of how global standards like IFRS shape the information environment and provides practical insights for policymakers seeking to harmonize reporting practices across diverse jurisdictions.

Figure 1 Conceptual framework of the impact of IFRS according to country type



5.5 Limitations and Directions for Future Research

Several limitations should be acknowledged when interpreting the findings. The use of brokerage-level data, rather than individual analyst-level data, may obscure within-firm heterogeneity in forecasting behavior and analyst expertise. While the literature supports the relevance of brokerage house environments in shaping forecast performance, this level of aggregation may limit granularity in attributing forecasting patterns to individual analysts.

In addition, the analysis may be subject to unobserved heterogeneity across firms, industries, or countries that are not fully captured by fixed effects or control variables. Factors such as cultural norms, disclosure incentives, or firm-level governance mechanisms could influence how IFRS is applied and interpreted in practice. Moreover, the timing of full compliance with IFRS standards may vary across countries and firms, introducing further complexity in identifying treatment effects around the nominal implementation date.

Future research could address these limitations by incorporating analyst-level data to better capture differences in individual forecasting behavior, experience, and specialization. In parallel, textual

analysis of financial disclosures could offer insights into how IFRS standards are communicated, interpreted, or adapted across jurisdictions. Another promising direction involves exploring how IFRS interacts with other regulatory reforms, such as MiFID II or ESG disclosure requirements, to better understand the cumulative and possibly complementary effects of modern financial regulation on information environments and market behavior.

5.6 Conclusion

The collective findings support the view that IFRS represents a necessary but not sufficient condition for improving the quality of analysts' information environments. While the adoption of IFRS introduces a standardized framework for financial reporting, its effectiveness is shown to depend critically on the institutional infrastructure in which it is embedded and the temporal lens through which its effects are assessed. These results are consistent with the growing literature that emphasizes the role of enforcement, legal protection, and regulatory oversight in shaping the practical outcomes of global accounting reforms.

The concept of conditional convergence is particularly relevant in interpreting these findings. Conditional convergence refers to the idea that economies or institutions do not necessarily converge to the same level of performance or quality, but rather approach their own steady-state outcomes depending on specific initial conditions or structural factors, such as institutional quality, legal environment, or enforcement mechanisms (Barro & Sala-i-Martin, 1992; Sala-i-Martin, 1996). Applied to accounting standards adoption, this implies that IFRS does not generate uniform improvements across all countries; instead, its benefits are mediated by pre-existing institutional characteristics. In jurisdictions with strong enforcement and credible compliance, analysts can better utilize standardized disclosures, leading to enhanced forecast accuracy and reduced dispersion. Conversely, in weaker enforcement settings, the potential gains from IFRS adoption are diluted, and forecast quality remains largely unchanged.

A distinctive contribution of this analysis lies in its use of a DiD in reverse framework, which departs from the conventional assumption that treatment effects widen post-reform. Instead, this approach highlights pre-existing heterogeneity in forecast behavior across countries and evaluates whether IFRS served to reduce informational asymmetries by promoting convergence. The evidence shows that improvements in forecast quality and dispersion occurred where institutional readiness was high, narrowing the gap between countries post-implementation. This suggests that IFRS functions primarily as a harmonizing mechanism, rather than a direct enhancer of forecast quality on its own. Its

value lies in establishing a consistent reporting baseline, which only becomes effective when paired with mechanisms that ensure faithful implementation, disciplined interpretation, and meaningful enforcement.

Another key insight concerns the temporal sensitivity of IFRS effects, as revealed in hypotheses H3a and H3b. The robustness checks using alternative observation windows (6 years vs. 10 years) show that the estimated impact of IFRS varies significantly with the length of the estimation period. A shorter window centered on the reform year (2002–2007) captures strong and statistically significant improvements in forecast dispersion and accuracy, while a longer window (2000–2009) yields ambiguous or contradictory results, likely due to confounding macroeconomic shocks such as the dot-com bubble and the subprime crisis. These findings suggest that IFRS benefits are temporally localized, with the most pronounced improvements occurring shortly after adoption, before being obscured by unrelated events in extended timeframes.

To address this window bias, the study introduces a financial-year-level event study design, which combines the temporal granularity of event studies with the causal inference power of a difference-in-differences approach. This hybrid design isolates year-by-year deviations in dispersion and error between treated and benchmark countries, providing a more precise identification of IFRS effects while retaining comparability across groups. The event study confirms that forecast accuracy and consensus improved significantly and persistently in disciplined countries after 2005, whereas undisciplined countries saw little to no change—further reinforcing the role of enforcement and the importance of temporal alignment in empirical design.

Additionally, the findings highlight that the benefits of IFRS are not uniformly distributed across sectors or forecast horizons. As shown in the robustness tests, analysts operating in high-transparency sectors—such as those with more tangible, predictable revenue streams—are better positioned to incorporate IFRS-based disclosures into their forecasts. Conversely, in R&D-intensive industries, the discretion introduced by standards such as IAS 38 may increase interpretive complexity, limiting comparability and contributing to greater dispersion. Similarly, evidence from prior studies and from this analysis suggests that short-horizon forecasts (i.e., those made closer to earnings announcements) benefit more from IFRS than long-horizon forecasts, reflecting both analyst learning curves and market adaptation lags.

In conclusion, the findings of this study illustrate that the success of IFRS in improving forecast quality and reducing dispersion hinges on a combination of institutional enforcement, sectoral context, and temporal design. The dual dependency on both where and when IFRS effects are measured underscores the need for future research to adopt context-aware, time-sensitive frameworks when

evaluating regulatory reforms. This integrated approach contributes to a more nuanced understanding of how global standards like IFRS shape the information environment and provides practical insights for policymakers seeking to harmonize reporting practices across diverse jurisdictions.

6. Robustness checks

6.1 Window period sensitivity analysis

To evaluate H3a and H3b, which assert that the impact of IFRS on estimates dispersion and revision is time window sensitive, we performed a series of robustness tests using two distinct estimation windows: a short window (6 years: 2002–2007) and a longer window (10 years: 2000–2009). The aim was to assess how the choice of temporal framing around the IFRS adoption year (2005) influences the measured effect.

Table 10 Robustness evidence from 6 years fixed-window estimations

Estimate Dispersion

Source	Valeur	Pr > |t|
Constante	10,6%	< 0,0001
IFRS	-1,9%	< 0,0001
FY-2002	1,3%	< 0,0001
FY-2003	0,4%	0,027
FY-2004	-1,5%	< 0,0001
FY-2005	-0,2%	0,336
FY-2006	0,0%	
FY-2007	-0,1%	0,801

IFRS improved estimate error

IFRS improved dispersion

Internet bubble

Estimate Error

Source	Valeur	Pr > |t|
Constante	17,17%	< 0,0001
IFRS	-2,72%	< 0,0001
FY-2002	2,39%	< 0,0001
FY-2003	0,20%	0,196
FY-2004	-2,50%	< 0,0001
FY-2005	0,92%	< 0,0001
FY-2006	0,00%	
FY-2007	-1,01%	< 0,0001

Table 11 Robustness evidence from 10 years fixed-window estimations

Impact of IFRS on dispersion and estimate error, 10 years data

Estimate Dispersion

Source	Valeur	Pr > |t|
Constante	11,1%	< 0,0001
IFRS	-1,7%	< 0,0001
FY-2000	-0,1%	0,506
FY-2001	1,0%	< 0,0001
FY-2002	0,8%	0,000
FY-2003	-0,1%	0,550
FY-2004	-2,0%	< 0,0001
FY-2005	-0,9%	< 0,0001
FY-2006	-0,7%	0,001
FY-2007	-0,8%	0,000
FY-2008	0,0%	
FY-2009	2,9%	< 0,0001

IFRS worsened estimate error

IFRS improved dispersion

Internet bubble

Subprime

Estimate Error

Source	Valeur	Pr > |t|
Constante	14,1%	< 0,0001
IFRS	6,6%	< 0,0001
FY-2000	3,6%	< 0,0001
FY-2001	6,3%	< 0,0001
FY-2002	5,4%	< 0,0001
FY-2003	3,2%	< 0,0001
FY-2004	0,5%	0,004
FY-2005	-5,4%	< 0,0001
FY-2006	-6,3%	< 0,0001
FY-2007	-7,3%	< 0,0001
FY-2008	0,0%	
FY-2009	-0,1%	0,760

As shown in tables 10 and 11, the 6-year window yields strong evidence in support of IFRS improving both forecast dispersion (–1.9%, $p < 0.0001$) and forecast error (–2.72%, $p < 0.0001$). However, when extending the window to 10 years, the results become mixed: while dispersion remains negatively associated with IFRS (–1.7%, $p < 0.0001$) hence still showing an improvement, forecast error significantly worsens (+6.6%, $p < 0.0001$). This contrast suggests that macro shocks, such as the dot-com bubble (2000–2002) and the subprime crisis (2007–2009), may bias the estimated effects.

These results confirm the window-sensitivity bias: IFRS effects appear stronger and more consistent when estimated in close proximity to the reform because it is affected by the presence of the dotcom bubble just before and a return to normality just after, while longer windows incorporate confounding noise, distorting the measured regulatory impact. This supports both hypotheses H3a and H3b.

6.2 Macro sector analysis

To deepen the analysis of IFRS adoption's impact on earnings estimate quality, a macro-sector classification variable was introduced. This classification groups firms according to their economic behavior. Cyclical sectors tend to amplify macroeconomic fluctuations, with earnings typically declining by 20–30% during recessions and increasing by up to 45% during economic expansions. In

contrast, defensive sectors act as stabilizers, mitigating the effects of GDP volatility and exhibiting relatively consistent earnings growth year after year. Growth sectors maintain strong earnings performance across economic cycles, driven primarily by innovation and research and development activities. The financial sector is characterized by earnings that are largely influenced by interest rate levels and their fluctuations.

Table 12 Macro sector constituents

Cyclical	Oil & Gas Industrial Goods & Services Basic Resources Chemicals Construction & Materials Media Automobiles & Parts Travel & Leisure
Defensive	Food & Beverage Utilities Personal & Household Goods Retail
Growth	Health Care Telecommunications Technology
Interest rate	Banks Insurance Financial Services Real Estate

This analysis offers an empirically grounded examination of how IFRS adoption influences the dispersion and accuracy of analysts' earnings forecasts, with particular attention paid to differences across macro-sectors and legal enforcement environments.

It distinguishes between "disciplined" and "undisciplined" countries (terms referring to the strength of legal institutions and pre-IFRS accounting practices). Using sectoral and temporal breakdowns, the presentation employs a DiD in reverse framework over a long historical horizon (1994–2023) to isolate the effect of IFRS adoption. The structure of the model, incorporating fixed effects for year and country type, ensures robustness against time-specific shocks such as the Internet bubble, the Subprime crisis, and COVID-19.

Formula (4)

$$Y_{i,t,s} = \text{constante } \alpha + \delta i \text{ (fixed country type effect)} + \lambda t \text{ (fixed year effect)} + \beta 2s[\text{sector(s)xG2}\times\text{IFRS}] + \beta 3s[\text{sector(s)xG3}\times\text{IFRS}] + \varepsilon i,t$$

The robustness check begins by introducing a panel regression model designed to capture the differentiated effects of IFRS adoption across countries and sectors. The formula specifies a framework that accounts for country-specific legal characteristics (year-specific shocks and interaction effects between sector type, country group (G2 for disciplined, G3 for undisciplined), and IFRS adoption status. The dependent variable Yi,t,s refers either to forecast dispersion or forecast error, depending on the analysis.

This econometric setup allows the estimation of how the introduction of IFRS in 2005 influenced the information environment differently across sectoral and institutional dimensions. The interaction terms are particularly insightful, capturing how the benefits of IFRS vary depending not only on the legal infrastructure of a country but also on the visibility of the sector in question.

The findings in table 9 indicate that, in countries classified as disciplined, IFRS adoption led to broad improvements in forecast dispersion across all sectors. The magnitude of this improvement was positively correlated with sector visibility: sectors with more transparent operations or more predictable earnings patterns experienced the most significant gains. This outcome highlights the role of pre-existing institutional quality in enhancing the effectiveness of international accounting standards.

In contrast, the effect in undisciplined countries was more selective. Only sectors with high visibility saw meaningful improvements in dispersion following IFRS adoption. This result implies that in the absence of strong legal enforcement, the capacity of IFRS to reduce information asymmetry remains limited, except in cases where firm-level transparency compensates for institutional shortcomings.

The analysis of forecast errors (table 10) further reinforces this narrative. Both disciplined and undisciplined countries show improvements post-IFRS in high-visibility sectors. However, sectors with low visibility did not benefit uniformly, suggesting that IFRS adoption alone does not guarantee increased forecast accuracy without a supportive informational environment.

Overall, this robustness analysis provides empirical evidence that the success of regulatory interventions such as IFRS adoption is contingent upon both macro-institutional factors and micro-sectoral characteristics. The combination of sectoral visibility and legal enforcement emerges as a critical determinant of the degree to which international standards enhance the financial information environment.

Table 13 DISPERSION Macro Sector analysis of difference to IFRS countries

Variables	Value	Standard error	t
intercept	7,9%	0,07%	121,14***
Disciplined countries G2	3,7%	0,18%	20,6***
Undisciplined countries G3	2,0%	0,16%	12,42***
FY-1994	-1,7%	0,76%	-2,17**
FY-1995	0,0%	0,67%	-0,06
FY-1996	-1,7%	0,62%	-2,79***
FY-1997	-0,7%	0,39%	-1,72*
FY-1998	-1,0%	0,29%	-3,45***
FY-1999	-0,2%	0,25%	-0,76
FY-2000	1,4%	0,21%	6,79***
FY-2001	2,6%	0,19%	13,62***
FY-2002	2,6%	0,18%	14,28***
FY-2003	1,7%	0,18%	9,82***
FY-2004	-0,1%	0,16%	-0,32
FY-2005	-0,4%	0,16%	-2,37**
FY-2006	-0,3%	0,16%	-1,93*
FY-2007	-0,4%	0,15%	-2,33**
FY-2008	0,5%	0,15%	3,02***
FY-2009	3,4%	0,17%	19,97***
FY-2010	0,9%	0,16%	5,53***
FY-2011	-0,6%	0,15%	-3,99***
FY-2012	-0,3%	0,14%	-1,87*
FY-2013	-1,1%	0,14%	-8,08***
FY-2014	-1,3%	0,14%	-9,29***
FY-2015	-1,1%	0,14%	-7,98***
FY-2016	-1,3%	0,14%	-9,69***
FY-2017	-1,3%	0,13%	-9,95***
FY-2018	-1,6%	0,14%	-11,67***
FY-2019	-1,2%	0,14%	-8,4***
FY-2020	2,3%	0,15%	15,55***
FY-2021	0,5%	0,14%	3,37***
FY-2022	0,2%	0,14%	1,37

IFRS*G2*theme-cyclical	-0,7%	0,21%	-3,48***
IFRS*G2*theme-defensif	-4,1%	0,24%	-17,36***
IFRS*G2*theme-growth	-3,2%	0,23%	-14,42***
IFRS*G2*theme-rate	-1,0%	0,23%	-4,58***
IFRS*G3*theme-cyclical	1,0%	0,21%	4,76***
IFRS*G3*theme-defensif	-2,0%	0,20%	-9,8***
IFRS*G3*theme-growth	0,7%	0,22%	3,18***
IFRS*G3*theme-rate	0,6%	0,21%	2,82***

***, ** and * represent significance at the 1%, 5% and 10% respectively

Table 14 REVISION Macro Sector analysis of difference to IFRS countries

Variables	Value	Standard error	T
Intercept	14,7%	0,04%	353,71***
Disciplined countries G2	2,7%	0,06%	44,66***
Undisciplined countries G3	2,0%	0,06%	32,45***
FY-1994	-2,5%	0,33%	-7,44***
FY-1995	0,5%	0,26%	1,74*
FY-1996	-2,6%	0,23%	-11,37***
FY-1997	-2,9%	0,20%	-14,65***
FY-1998	-1,0%	0,18%	-5,5***
FY-1999	-0,5%	0,17%	-3,23***
FY-2000	1,7%	0,16%	10,68***
FY-2001	4,4%	0,15%	29,86***
FY-2002	3,5%	0,14%	24,37***
FY-2003	1,4%	0,14%	9,59***
FY-2004	-1,3%	0,14%	-9,61***
FY-2005	-0,7%	0,13%	-5,37***
FY-2006	-1,6%	0,13%	-12,34***
FY-2007	-2,6%	0,13%	-20,26***
FY-2008	4,8%	0,13%	37,26***
FY-2009	4,8%	0,13%	38,19***
FY-2010	1,4%	0,12%	11,96***
FY-2011	0,2%	0,11%	2,15**
FY-2012	-1,3%	0,11%	-11,42***
FY-2013	-1,2%	0,11%	-10,85***
FY-2014	-2,8%	0,11%	-24,48***
FY-2015	-2,2%	0,11%	-19,16***
FY-2016	-2,7%	0,11%	-23,99***
FY-2017	-3,0%	0,11%	-27,02***
FY-2018	-2,8%	0,11%	-24,35***
FY-2019	-3,0%	0,11%	-26,19***
FY-2020	7,1%	0,12%	60,75***
FY-2021	3,4%	0,12%	29,56***
FY-2022	1,5%	0,11%	13,37***

G2*IFRS*theme-cyclical	2,1%	0,08%	26,45***
G2*IFRS*theme-defensif	-2,9%	0,10%	-30,22***
G2*IFRS*theme-growth	-3,0%	0,09%	-33,83***
G2*IFRS*theme-rate	3,8%	0,10%	38,68***
G3*IFRS*theme-cyclical	2,9%	0,09%	31,16***
G3*IFRS*theme-defensif	-3,4%	0,09%	-38,99***
G3*IFRS*theme-growth	-1,8%	0,10%	-17,85***
G3*IFRS*theme-rate	2,4%	0,10%	24,01***

***, ** and * represent significance at the 1%, 5% and 10% respectively

6.3 Timelag analysis

This test introduces a regression model designed to examine the temporal dynamics of IFRS adoption on forecast dispersion and error, particularly in relation to the timing of analyst estimates.

Formula (5)

$$Y_{i,t,s} = \text{constante } \alpha + \delta i \text{ (fixed country type effect)} + \lambda t \text{ (fixed year effect)} + \beta 2s[\text{timelag(s)xG2}\times\text{IFRS}] + \beta 3s[\text{timelag(s)xG3}\times\text{IFRS}] + \varepsilon i,t$$

The specified equation, incorporates fixed effects for country type and year, controlling for institutional and temporal heterogeneity. The interaction terms involving timelag, group classification, and IFRS adoption capture how the proximity of forecasts to earnings announcements mediates the regulation's impact in both disciplined (G2) and undisciplined (G3) environments.

The empirical findings suggest a differentiated pattern. In disciplined countries, the effect of IFRS on dispersion intensifies as forecasts approach the disclosure date (table 11). This indicates that the informational benefits of IFRS are cumulative and most pronounced when analysts have access to more timely and accurate data. In contrast, undisciplined countries exhibit a delayed response, with significant reductions in dispersion occurring only at the moment of disclosure. This lag underscores the limited capacity of IFRS to enhance analyst consensus in settings where institutional enforcement is weaker and interim information flows are less reliable.

The analysis of forecast error mirrors these insights (table 12). In both country types, forecast accuracy improves most for estimates issued immediately before earnings releases. However, the adoption of IFRS appears to have worsened the performance of early forecasts. This suggests that IFRS contributes primarily to short-term informational precision rather than enhancing the entire timeline of forecast accuracy. These results align with the findings of Barniv, Myring, and Westfall (2022), who also observed greater forecast accuracy closer to disclosure under IFRS.

The test thus emphasizes the temporal asymmetry in the regulation's effectiveness. The data demonstrate that while IFRS enhances analysts' ability to converge on accurate forecasts, this effect is time-sensitive and contingent on institutional infrastructure. Improved transparency and comparability do not operate uniformly across time; rather, their efficacy emerges most clearly when supported by strong legal frameworks and when analysts operate near key informational milestones.

Table 15 DISPERSION Timelag analysis of difference to IFRS countries

Variables	Value	Standard error	t
intercept	7,9%	0,07%	120,21***
Disciplined countries G2	3,7%	0,18%	20,44***
Undisciplined countries G3	2,0%	0,16%	12,32***
FY-1994	-1,7%	0,77%	-2,16**
FY-1995	0,0%	0,67%	-0,06
FY-1996	-1,7%	0,62%	-2,77***
FY-1997	-0,7%	0,39%	-1,7*
FY-1998	-1,0%	0,29%	-3,42***
FY-1999	-0,2%	0,26%	-0,75
FY-2000	1,4%	0,21%	6,74***
FY-2001	2,6%	0,19%	13,52***
FY-2002	2,6%	0,18%	14,18***
FY-2003	1,7%	0,18%	9,75***
FY-2004	-0,1%	0,17%	-0,31
FY-2005	-0,3%	0,16%	-1,98**
FY-2006	-0,2%	0,16%	-1,46
FY-2007	-0,3%	0,15%	-1,87*
FY-2008	0,4%	0,15%	2,7***
FY-2009	3,3%	0,17%	18,9***
FY-2010	0,9%	0,16%	5,6***
FY-2011	-0,5%	0,15%	-3,39***
FY-2012	-0,3%	0,14%	-2**
FY-2013	-1,1%	0,14%	-8,09***
FY-2014	-1,3%	0,14%	-9,31***
FY-2015	-1,1%	0,14%	-8,06***
FY-2016	-1,3%	0,14%	-9,77***
FY-2017	-1,4%	0,14%	-10,06***
FY-2018	-1,6%	0,14%	-11,55***
FY-2019	-1,1%	0,14%	-8,11***
FY-2020	2,2%	0,15%	15,08***
FY-2021	0,5%	0,14%	3,37***
FY-2022	0,2%	0,14%	1,43

IFRS*G2*timelag-12mBFYE	-1,4%	0,24%	-5,79***
IFRS*G2*timelag-9mBFYE	-1,4%	0,24%	-5,67***
IFRS*G2*timelag-6mBFYE	-1,7%	0,24%	-7,03***
IFRS*G2*timelag-3mBFYE	-2,2%	0,24%	-9,13***
IFRS*G2*timelag-FYE	-2,4%	0,24%	-10,06***
IFRS*G2*timelag-3mAFYE	-3,3%	0,25%	-13,28***
IFRS*G3*timelag-12mBFYE	0,3%	0,23%	1,18
IFRS*G3*timelag-9mBFYE	0,1%	0,23%	0,47
IFRS*G3*timelag-6mBFYE	0,0%	0,23%	0,19
IFRS*G3*timelag-3mBFYE	0,1%	0,23%	0,23
IFRS*G3*timelag-FYE	-0,2%	0,22%	-1,07
IFRS*G3*timelag-3mAFYE	-0,9%	0,23%	-3,83***

***, ** and * represent significance at the 1%, 5% and 10% respectively

Table 16 REVISION Timelag analysis of difference to IFRS countries

Variables	Value	Standard error	t
intercept	14,7%	0,04%	355,42***
Disciplined countries G2	2,9%	0,06%	48,23***
Undisciplined countries G3	1,8%	0,06%	30,93***
FY-1994	-2,5%	0,33%	-7,41***
FY-1995	0,5%	0,26%	1,78*
FY-1996	-2,6%	0,23%	-11,37***
FY-1997	-2,9%	0,19%	-14,73***
FY-1998	-1,0%	0,17%	-5,52***
FY-1999	-0,6%	0,17%	-3,26***
FY-2000	1,7%	0,16%	10,7***
FY-2001	4,4%	0,15%	29,96***
FY-2002	3,5%	0,14%	24,46***
FY-2003	1,4%	0,14%	9,61***
FY-2004	-1,3%	0,14%	-9,7***
FY-2005	-0,6%	0,13%	-4,6***
FY-2006	-1,5%	0,13%	-11,71***
FY-2007	-2,6%	0,13%	-20,06***
FY-2008	4,7%	0,13%	37,21***
FY-2009	4,7%	0,12%	38,06***
FY-2010	1,5%	0,12%	12,48***
FY-2011	0,3%	0,11%	2,7***
FY-2012	-1,3%	0,11%	-11,85***
FY-2013	-1,2%	0,11%	-10,94***
FY-2014	-2,8%	0,11%	-24,52***
FY-2015	-2,2%	0,11%	-19,76***
FY-2016	-2,7%	0,11%	-24,62***
FY-2017	-3,1%	0,11%	-27,7***
FY-2018	-2,8%	0,11%	-24,69***
FY-2019	-3,0%	0,11%	-26,58***
FY-2020	7,1%	0,12%	61,15***
FY-2021	3,4%	0,11%	29,58***
FY-2022	1,5%	0,11%	13,21***

IFRS*G2*timelag-12mBFYE	5,6%	0,10%	54,43***
IFRS*G2*timelag-9mBFYE	2,9%	0,10%	28,69***
IFRS*G2*timelag-6mBFYE	0,7%	0,10%	6,55***
IFRS*G2*timelag-3mBFYE	-3,0%	0,10%	-29,93***
IFRS*G2*timelag-FYE	-6,2%	0,10%	-60,9***
IFRS*G3*timelag-12mBFYE	5,1%	0,11%	47,32***
IFRS*G3*timelag-9mBFYE	2,3%	0,11%	21,78***
IFRS*G3*timelag-6mBFYE	0,2%	0,11%	1,57
IFRS*G3*timelag-3mBFYE	-2,5%	0,11%	-23,67***
IFRS*G3*timelag-FYE	-5,1%	0,11%	-46,82***

***, ** and * represent significance at the 1%, 5% and 10% respectively

6.4 Hausman Tests

For both variable (Earnings Forecast Dispersion and Revision) the same model specification was used (table 17). The test was performed with a Python program.

Table 17 Hausman test specifications

Hausman test specifications

The model tested translates to:

$$Y_{i,t}=\alpha+\delta_i+\lambda_t+\beta_2(G2\times IFRS)+\beta_3(G3\times IFRS)+\varepsilon_{i,t}$$

Where:
α is the constant term
δ_i represents the fixed country type effect (G2 or G3, with G1 as reference)
λ_t represents the fiscal year effect (dummy variables)
β_2 and β_3 are the differential effects of IFRS for G2 and G3 compared to G1
$\varepsilon_{i,t}$ is the error term

Key Implementation Details

Group Identifier: creation of a group_id variable to identify observations by country group (G1, G2, G3).

Panel Structure: Out of a 2-level MultiIndex with group_id as the entity dimension and FY as the time dimension.

Fixed Effects Specification:
Explicit inclusion of G2 and G3 to model the fixed country type effect (δ_i)
Use of time_effects=True to capture the fiscal year effects (λ_t)

Inclusion of the interaction terms IFRS_G2 and IFRS_G3 to model the differential IFRS effects

Random Effects Specification:
Use of the same variables as in the fixed effects model

Plus explicit fiscal year dummies, since RandomEffects doesn't support time_effects=True

Hausman Test:
Tests whether the random effects assumptions are valid
Compares coefficients between fixed and random effects models
Includes all common parameters in the test

Effect Calculation:
In this specification, there's no direct IFRS effect for G1 (it's the reference group)
IFRS_G2 represents the effect of IFRS for G2 countries
IFRS_G3 represents the effect of IFRS for G3 countries

6.3.1 Earnings Estimate Dispersion

Analysis of Hausman Test Results on Earnings Estimate Dispersion (table 18)

The Hausman test and model estimates provide a comprehensive analysis of how IFRS adoption affected earnings estimate dispersion across different country groups.

In table 18, the significant p-value ($p = 0.013 < 0.05$) indicates that the random effects assumptions are violated, and the fixed effects model is more appropriate. This means there are likely systematic differences between the country groups that are correlated with the explanatory variables.

Fixed Effects Model Results

The fixed effects model includes time effects (year dummies) and shows:

Base level dispersion (constant): 0.0783 (highly significant, $p < 0.0001$)

Country group effects (relative to G1):

G2 countries have higher baseline dispersion: +0.0374 ($p < 0.0001$)

G3 countries have higher baseline dispersion: +0.0202 ($p < 0.0001$)

IFRS adoption effects by country group:

G2: -0.0204 (significant, $p < 0.0001$) (Disciplined countries)

G3: -0.0010 (not significant, $p = 0.5924$) (Undisciplined countries)

Model fit: R-squared = 0.0234 (overall), indicating the model explains about 2.34% of the variation in STDEV.

F-test for Poolability: Highly significant ($p < 0.0001$), confirming that the time effects (financial year FY variable) are important.

Random Effects Model Results

While not preferred according to the Hausman test, the random effects model provides additional insights:

Similar country group and IFRS effects to the fixed effects model, but with slightly different magnitudes.

Time effects: Several years show significant effects, particularly 2000-2003, 2009, and 2020, which correspond to periods of financial crisis or market volatility.

Better model fit: R-squared = 0.0709 (overall), which is higher than the fixed effects model.

Interpretation of IFRS Effects

Differential impact across country groups:

In G2 countries, IFRS adoption significantly reduced earnings estimate dispersion by approximately 0.0204 units (about 26% relative to the baseline of 0.0783).

In G3 countries, IFRS adoption had a minimal and statistically non-significant effect (-0.0010 units).

No direct effect was estimated for G1 countries (reference group).

Economic significance: The 0.0204 reduction in dispersion for G2 countries represents a substantial improvement in forecast consensus, suggesting IFRS adoption led to more consistent earnings estimates among analysts in these countries.

Practical Implications

IFRS effectiveness varies by country group: The benefits of IFRS adoption are not uniform across all country groups. G2 countries experienced significant improvements in earnings forecast consistency, while G3 countries saw minimal changes.

Country characteristics matter: The differential impact suggests that institutional factors, enforcement mechanisms, or pre-existing accounting practices in different country groups significantly influence how IFRS adoption affects reporting quality.

Time effects are important: The significant time effects indicate that market-wide factors (such as financial crises) substantially impact earnings forecast dispersion, independent of accounting standards.

Based on the Hausman test results, the fixed effects model is more appropriate for this analysis. The findings demonstrate that IFRS adoption significantly reduced earnings estimate dispersion in G2 countries by approximately 26%, while having no significant effect in G3 countries. This suggests that the benefits of IFRS adoption are contingent on country-specific factors, highlighting the importance of considering institutional context when evaluating the impact of international accounting standards.

Table 18 Dispersion Hausman test full results

Hausman Test Results on Earnings Estimate Dispersion:

Statistic: 12.641483798896312
Degrees of freedom: 4
P-value: 0.013167149517148147
Reject H0: Use fixed effects model

Fixed Effects Model Results:

PanelOLS Estimation Summary

Dep. Variable:	STDEV	R-squared:	0.0234
Estimator:	PanelOLS	R-squared (Between):	-0.0147
No. Observations:	52453	R-squared (Within):	0.0064
Date:	Wed, May 14 2025	R-squared (Overall):	0.0287
Time:	22:41:15	Log-likelihood	6.797e+04
Cov. Estimator:	Unadjusted		
		F-statistic:	313.56
Entities:	967	P-value	0.0000
Avg Obs:	54.243	Distribution:	F(4,52420)
Min Obs:	1.0000		
Max Obs:	148.00	F-statistic (robust):	313.56
		P-value	0.0000
Time periods:	29	Distribution:	F(4,52420)
Avg Obs:	1808.7		
Min Obs:	71.000		
Max Obs:	2823.0		

Parameter Estimates

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
const	0.0783	0.0004	185.02	0.0000	0.0775	0.0791
G2	0.0374	0.0018	20.417	0.0000	0.0338	0.0409
G3	0.0202	0.0016	12.308	0.0000	0.0169	0.0234
IFRS_G2	-0.0204	0.0020	-10.266	0.0000	-0.0243	-0.0165

IFRS_G3 -0.0010 0.0018 -0.5354 0.5924 -0.0045 0.0026

==========

F-test for Poolability: 67.630

P-value: 0.0000

Distribution: F(28,52420)

Included effects: Time

Random Effects Model Results:

RandomEffects Estimation Summary

==========

Dep. Variable: STDEV R-squared: 0.0709

Estimator: RandomEffects R-squared (Between): 0.0421

No. Observations: 52453 R-squared (Within): 0.0559

Date: Wed, May 14 2025 R-squared (Overall): 0.0415

Time: 22:41:17 Log-likelihood 7.81e+04

Cov. Estimator: Unadjusted

F-statistic: 124.93

Entities: 967 P-value 0.0000

Avg Obs: 54.243 Distribution: F(32,52420)

Min Obs: 1.0000

Max Obs: 148.00 F-statistic (robust): 96.704

P-value 0.0000

Time periods: 29 Distribution: F(32,52420)

Avg Obs: 1808.7

Min Obs: 71.000

Max Obs: 2823.0

Parameter Estimates

==========

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
const	0.0671	0.0071	9.4696	0.0000	0.0532	0.0810
G2	0.0388	0.0042	9.2263	0.0000	0.0305	0.0470
G3	0.0192	0.0041	4.6995	0.0000	0.0112	0.0273

IFRS_G2	-0.0219	0.0018	-11.835	0.0000	-0.0255	-0.0182
IFRS_G3	-0.0032	0.0017	-1.8768	0.0606	-0.0065	0.0001
FY_1995	0.0072	0.0088	0.8252	0.4093	-0.0100	0.0245
FY_1996	-0.0030	0.0085	-0.3558	0.7220	-0.0197	0.0137
FY_1997	0.0033	0.0074	0.4501	0.6526	-0.0112	0.0178
FY_1998	0.0022	0.0071	0.3182	0.7503	-0.0116	0.0161
FY_1999	0.0117	0.0069	1.6928	0.0905	-0.0019	0.0254
FY_2000	0.0260	0.0068	3.8105	0.0001	0.0126	0.0394
FY_2001	0.0426	0.0068	6.2622	0.0000	0.0293	0.0559
FY_2002	0.0466	0.0068	6.8685	0.0000	0.0333	0.0600
FY_2003	0.0369	0.0068	5.4356	0.0000	0.0236	0.0502
FY_2004	0.0168	0.0068	2.4772	0.0132	0.0035	0.0300
FY_2005	0.0159	0.0068	2.3262	0.0200	0.0025	0.0293
FY_2006	0.0161	0.0068	2.3569	0.0184	0.0027	0.0295
FY_2007	0.0147	0.0068	2.1528	0.0313	0.0013	0.0281
FY_2008	0.0231	0.0068	3.3788	0.0007	0.0097	0.0365
FY_2009	0.0574	0.0069	8.3676	0.0000	0.0440	0.0709
FY_2010	0.0319	0.0068	4.6556	0.0000	0.0185	0.0453
FY_2011	0.0173	0.0068	2.5325	0.0113	0.0039	0.0307
FY_2012	0.0211	0.0068	3.1058	0.0019	0.0078	0.0345
FY_2013	0.0144	0.0068	2.1170	0.0343	0.0011	0.0277
FY_2014	0.0133	0.0068	1.9604	0.0500	2.542e-06	0.0267
FY_2015	0.0158	0.0068	2.3158	0.0206	0.0024	0.0291
FY_2016	0.0143	0.0068	2.0977	0.0359	0.0009	0.0276
FY_2017	0.0113	0.0068	1.6587	0.0972	-0.0020	0.0246
FY_2018	0.0074	0.0068	1.0823	0.2791	-0.0060	0.0207
FY_2019	0.0123	0.0068	1.8097	0.0704	-0.0010	0.0257
FY_2020	0.0494	0.0068	7.2394	0.0000	0.0360	0.0627
FY_2021	0.0285	0.0068	4.1818	0.0000	0.0151	0.0418
FY_2022	0.0248	0.0068	3.6426	0.0003	0.0115	0.0381

6.3.2 Earnings Estimate revision

Analysis of Hausman Test Results on Earnings Estimate Revisions (table 19)

The Hausman test yielded a highly significant result:

Statistic: 616.60

Degrees of freedom: 4

P-value: 0.0000

This strongly rejects the null hypothesis that the random effects estimator is consistent and efficient. Based on this test, the fixed effects model is strongly preferred over the random effects model for this analysis.

Fixed Effects Model Results

Baseline (G1): The constant term (0.1468) represents the baseline level of earnings revisions for G1 countries before IFRS adoption, after controlling for time effects.

Country Group Effects:

G2: Countries in Group 2 have significantly higher earnings revisions (+0.0620) compared to G1 countries

G3: Countries in Group 3 also have higher, but more moderate, earnings revisions (+0.0271) compared to G1 countries

IFRS Impact by Group:

G1: No differential effect measured (reference group)

G2: Significant reduction in earnings revisions (-0.0399) following IFRS adoption

G3: Smaller but still significant reduction (-0.0097) following IFRS adoption

Model Fit:

R-squared: 0.0049 (0.49%)

Despite the low R-squared, the F-test for poolability (487.46, $p < 0.0001$) confirms that time effects are significant and should be included

All coefficients are highly significant ($p < 0.0001$)

Random Effects Model Results

Although the Hausman test suggests the fixed effects model should be preferred, the random effects model provides additional insights:

Fiscal Year Effects: Many fiscal years show significant effects, especially crisis years:

2008-2009: Large positive effects (financial crisis)

2020: Largest positive effect (+0.1102), likely reflecting COVID-19 pandemic

2001-2002: Large positive effects (dot-com bubble/post-9/11)

Country Group and IFRS Effects: Similar pattern to fixed effects model, but with slightly smaller magnitudes:

G2: +0.0556 (vs. +0.0620 in FE)

G3: +0.0240 (vs. +0.0271 in FE)

IFRS × G2: -0.0303 (vs. -0.0399 in FE)

IFRS × G3: -0.0056 (vs. -0.0097 in FE)

Model Fit:

R-squared: 0.0302 (3.02%), substantially higher than the fixed effects model

This improved fit likely comes from explicitly modeling each fiscal year effect

Interpretation of IFRS Effects

IFRS Reduced Earnings Revisions: The adoption of IFRS standards appears to have significantly reduced earnings revisions across all country groups, with the effect being strongest in G2 countries. This suggests IFRS improved forecasting accuracy or reduced volatility in reported earnings.

Different Magnitudes Across Groups: The impact varies substantially by country group:

G2 countries experienced a 39.9% reduction in earnings revisions (relative to their baseline of 0.1468 + 0.0620 = 0.2088)

G3 countries experienced a smaller 5.6% reduction (relative to their baseline of 0.1468 + 0.0271 = 0.1739)

Economic Significance: Despite modest R-squared values (common in financial data), the effects are economically significant and highly statistically significant.

Time Effects Matter: The significant fiscal year effects confirm the importance of controlling for time-specific factors such as financial crises and economic cycles.

Practical Implications

Based on the Hausman test and model results, the fixed effects model provides the most reliable estimates of the IFRS impact on earnings revisions. The results strongly suggest that IFRS adoption has had a beneficial effect in reducing earnings revisions, with the impact varying significantly across country groups.

The differential impact across country groups indicates that the effectiveness of IFRS may depend on local institutional factors, market development, or pre-existing accounting standards. Further research could explore what characteristics of G2 countries made them more responsive to IFRS adoption compared to G3 countries.

Table 19 Revision Hausman test full results

Hausman Test Results on Earnings Estimate Revisions:

Statistic: 616.6027896402544
Degrees of freedom: 4
P-value: 0.0
Reject H0: Use fixed effects model

Fixed Effects Model Results:

PanelOLS Estimation Summary

Dep. Variable:	revision	R-squared:	0.0049
Estimator:	PanelOLS	R-squared (Between):	-0.0250
No. Observations:	603592	R-squared (Within):	0.0009
Date:	Thu, May 15 2025	R-squared (Overall):	0.0054
Time:	11:19:26	Log-likelihood	1.4e+05
Cov. Estimator:	Unadjusted		
		F-statistic:	745.82
Entities:	1191	P-value	0.0000
Avg Obs:	506.79	Distribution:	F(4,603559)
Min Obs:	1.0000		
Max Obs:	3140.0	F-statistic (robust):	745.82
		P-value	0.0000
Time periods:	29	Distribution:	F(4,603559)
Avg Obs:	2.081e+04		
Min Obs:	3090.0		
Max Obs:	2.959e+04		

Parameter Estimates

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
const	0.1468	0.0004	387.92	0.0000	0.1461	0.1476
G2	0.0620	0.0015	40.706	0.0000	0.0590	0.0650
G3	0.0271	0.0014	19.704	0.0000	0.0244	0.0298
IFRS_G2	-0.0399	0.0016	-24.254	0.0000	-0.0431	-0.0367

IFRS_G3 -0.0097 0.0015 -6.4349 0.0000 -0.0127 -0.0068

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F-test for Poolability: 487.46

P-value: 0.0000

Distribution: F(28,603559)

Included effects: Time

Random Effects Model Results:

RandomEffects Estimation Summary

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Dep. Variable:	revision	R-squared:	0.0302
Estimator:	RandomEffects	R-squared (Between):	0.0140
No. Observations:	603592	R-squared (Within):	0.0285
Date:	Thu, May 15 2025	R-squared (Overall):	0.0187
Time:	11:19:40	Log-likelihood	1.939e+05
Cov. Estimator:	Unadjusted		
		F-statistic:	586.43
Entities:	1191	P-value	0.0000
Avg Obs:	506.79	Distribution:	F(32,603559)
Min Obs:	1.0000		
Max Obs:	3140.0	F-statistic (robust):	552.70
		P-value	0.0000
Time periods:	29	Distribution:	F(32,603559)
Avg Obs:	2.081e+04		
Min Obs:	3090.0		
Max Obs:	2.959e+04		

Parameter Estimates

==========

	Parameter	Std. Err.	T-stat	P-value	Lower CI	Upper CI
const	0.1335	0.0051	25.985	0.0000	0.1234	0.1436
G2	0.0556	0.0067	8.3196	0.0000	0.0425	0.0687
G3	0.0240	0.0067	3.5790	0.0003	0.0109	0.0372

IFRS_G2	-0.0303	0.0016	-18.990	0.0000	-0.0335	-0.0272
IFRS_G3	-0.0056	0.0015	-3.7856	0.0002	-0.0085	-0.0027
FY_1995	0.0215	0.0040	5.3453	0.0000	0.0136	0.0293
FY_1996	-0.0072	0.0039	-1.8756	0.0607	-0.0148	0.0003
FY_1997	-0.0106	0.0037	-2.8916	0.0038	-0.0178	-0.0034
FY_1998	0.0106	0.0036	2.9520	0.0032	0.0036	0.0176
FY_1999	0.0130	0.0036	3.6546	0.0003	0.0060	0.0200
FY_2000	0.0344	0.0035	9.7860	0.0000	0.0275	0.0413
FY_2001	0.0654	0.0035	18.799	0.0000	0.0586	0.0722
FY_2002	0.0569	0.0035	16.435	0.0000	0.0502	0.0637
FY_2003	0.0415	0.0035	11.797	0.0000	0.0346	0.0484
FY_2004	0.0164	0.0036	4.5891	0.0000	0.0094	0.0234
FY_2005	0.0227	0.0035	6.3929	0.0000	0.0157	0.0296
FY_2006	0.0114	0.0035	3.2112	0.0013	0.0044	0.0183
FY_2007	-0.0002	0.0035	-0.0699	0.9443	-0.0072	0.0067
FY_2008	0.0749	0.0035	21.140	0.0000	0.0679	0.0818
FY_2009	0.0793	0.0035	22.455	0.0000	0.0724	0.0862
FY_2010	0.0436	0.0035	12.414	0.0000	0.0367	0.0504
FY_2011	0.0321	0.0035	9.1893	0.0000	0.0252	0.0389
FY_2012	0.0204	0.0035	5.8552	0.0000	0.0136	0.0273
FY_2013	0.0220	0.0035	6.2823	0.0000	0.0151	0.0288
FY_2014	0.0057	0.0035	1.6416	0.1007	-0.0011	0.0126
FY_2015	0.0138	0.0035	3.9385	0.0001	0.0069	0.0206
FY_2016	0.0075	0.0035	2.1560	0.0311	0.0007	0.0144
FY_2017	0.0021	0.0035	0.6128	0.5400	-0.0047	0.0090
FY_2018	0.0018	0.0035	0.5111	0.6093	-0.0051	0.0086
FY_2019	0.0033	0.0035	0.9359	0.3493	-0.0036	0.0101
FY_2020	0.1102	0.0035	31.370	0.0000	0.1033	0.1170
FY_2021	0.0698	0.0035	19.908	0.0000	0.0630	0.0767
FY_2022	0.0499	0.0035	14.233	0.0000	0.0430	0.0568

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LES ANALYSTES FINANCIERS FACE À LA MUTATION DES MARCHÉS : BIAIS, PERFORMANCES ET ENJEUX DE RÉGULATION

Dans un contexte de mutations profondes des marchés financiers, cette thèse examine le rôle, les limites et les transformations du travail des analystes financiers. Ces acteurs, souvent perçus comme des producteurs d'information neutre, sont en réalité influencés par des biais cognitifs, des incitations institutionnelles et des contraintes réglementaires. Cette thèse explore comment les recommandations et prévisions des analystes, loin d'être objectivement neutres, participent activement à la construction des marchés.
Elle repose sur trois articles complémentaires : le premier analyse l'impact de la bulle internet sur les recommandations des courtiers ; le second étudie le comportement des analystes lors des pics de cette bulle ; le troisième évalue les effets différenciés des normes IFRS sur la qualité des prévisions en Europe. L'approche mobilise des cadres théoriques variés comme l'efficience des marchés, la finance comportementale et la théorie de l'agence ; et met en lumière l'influence croissante des technologies (IA, big data) et des réformes (MIFID II, IFRS) sur la pratique analytique.
En soulignant les tensions entre expertise, objectivité et performances, cette recherche interroge la capacité réelle des analystes à éclairer les décisions d'investissement. Elle plaide pour une lecture critique de leur travail, ainsi qu'une régulation adaptée à la complexité contemporaine des marchés.

Mots clés : Analyste financier, biais cognitifs, régulation, prévisions de résultats, efficience des marchés, IFRS

FINANCIAL ANALYSTS AND EVOLVING MARKETS: BIAS, PERFORMANCE, AND REGULATION

In a context of deep transformations in financial markets, this thesis explores the role, limitations, and evolving nature of financial analysts' work. Often perceived as neutral information providers, analysts are in fact influenced by cognitive biases, institutional incentives, and regulatory constraints. This research explores how analysts' recommendations and forecasts, far from being objectively neutral, actively contribute to the construction of markets.
The thesis is based on three complementary articles: the first analyzes the impact of the internet bubble on broker recommendations; the second studies analysts' behavior at the peak of that bubble; the third evaluates the differentiated effects of IFRS standards on the quality of forecasts in Europe. The approach draws on diverse theoretical frameworks, such as market efficiency, behavioral finance, and agency theory, and highlights the growing influence of technology (AI, big data) and regulatory reforms (MIFID II, IFRS) on analytical practices.
By highlighting the tensions between expertise, objectivity, and performance, this dissertation questions the actual capacity of analysts to effectively inform investment decisions. It advocates for a critical reading of their work, as well as for regulation that is better suited to the contemporary complexity of financial markets.

Key words : Financial analyst, cognitive biases, regulation, earnings forecasts, market efficiency, IFRS