ECONOMIC EXPERTISE REGARDING THE PROPOSED SETTLEMENT BETWEEN CLAIMANTS' ORGANIZATIONS AND AGEAS SA/NV

By

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I. INTRODUCTION

A. Analysis Group

1. Analysis Group is one of the largest economic consulting firms in North America. Since its inception in 1981, we have provided economic and financial consulting expertise to law firms, government agencies, and corporations. We assist law firms with all aspects of litigation, including pretrial discovery, development of economic and financial models, identification and support of consulting and testifying experts, analysis of damages calculations, and trial testimony. We also advise corporate and government clients on a range of issues that require expertise in economics, finance, and data analysis.

2. Through our work on thousands of cases across multiple industries, often undertaken with our network of highly distinguished academic and industry experts, we have built a reputation for excellence by providing fact-based, thoughtful interpretation of complex legal and business issues. We have a staff of more than 600 consultants, most with advanced degrees in economics, statistics, finance, accounting, or management.[1]

3. Marc Van Audenrode is currently a managing principal of Analysis Group and an adjunct professor at the University of Sherbrooke in Canada. He is an expert in class action litigation, damages calculations, antitrust, labour economics, and issues involving policy and strategy. He has a broad range of experience in matters involving data analysis, evaluation of liability claims, assessment of investor and economic losses, pricing strategies, and analysis of various class action issues. His recent work in securities class action litigation includes filing expert reports and providing testimony in disputes involving, for instance, the evaluation of the management, structure, and performance of a collateral investment pool, and the assessment of management fees charged to mutual fund investors. He has estimated damages in various contexts, including claims of antitrust violations, product defects, misleading communications, and mismanagement. In the antitrust field, he has helped develop a methodology to evaluate the price of desktop software and ways to evaluate competition in the market for wireless pole attachments. His scientific research has been published in numerous peer-reviewed academic journals. He is a coauthor of the book, *The Mutual Fund Industry: Competition and Investor Welfare*, has written articles for trade journals, and is a frequent presenter at industry and academic conferences. Dr. Van Audenrode's curriculum vita, which includes a greater selection of his casework and a complete list of publications, is attached as **Appendix A** to this report.

[1] More information on Analysis Group is available at: http://www.analysisgroup.com/.

B. Mandate

4. An Analysis Group team led by Dr. Van Audenrode has been mandated by Ageas S.A. / N.V. ("Ageas") to provide economic expertise on whether the Settlement Agreement entered into between Ageas and claimants' organizations, Deminor, Stichting FortisEffect, Stichting Investor Claims Against Fortis (SICAF), and Dutch Shareholder Association VEB, is "fair and reasonable" from an economic perspective.[2] More specifically, Ageas has asked us to:

   a. Calculate the price impact that might be associated with specific Fortis communications, which claimants have alleged to be defective;

   b. Calculate the number of Fortis shares to which these potential price inflations would apply for each of the three periods being claimed in this settlement during which claimants have alleged that there were defective communications by Fortis (the "reference periods"); and

   c. Estimate whether the total amount awarded in the Settlement Agreement is adequate for compensating eligible shareholders who may have suffered economic losses.

C. Materials Considered

5. In preparing this report, we have relied upon documents and other materials produced in this litigation, as well as various industry publications and other publicly available materials. **Appendix B** contains a list of documents and materials considered in the preparation of this report.

6. We reserve the right to update, refine or revise our opinions, or form additional opinions if new information becomes available.

D. Disclaimer

7. The contents of this report should not be deemed or construed as an admission or evidence of any wrongdoing or liability on the part of Ageas. Estimates of economic losses contained in this report are calculated based on assumptions, including the assumption that there is Fortis share price inflation attributable to allegedly defective communications by Fortis during the reference

[2] Ageas Press Release, "Regulated information – Ageas, Deminor, Stichting FortisEffect, SICAF and VEB reach agreement aiming at settling all Fortis civil legacies," 14 March 2016, available at http://bit.ly/1RzaTX0. Settlement Agreement between Ageas SA/NV and Vereniging van Effectenbezitters and DRS Belgium CVBA and Stichting Investor Claims Against Fortis, dated 14 March 2016 (hereinafter, "Settlement Agreement").

periods being claimed in this settlement. In other words, while firm-specific communications have an impact on firm share prices, such an impact is only considered an artificial price inflation if the communication was defective and should not have taken place. To the extent that the communication was appropriate, the price impact is legitimate and does not represent share price inflation. If the communication was defective, in the sense that it should have taken a more nuanced form, then the price impact of the communication is an upper bound on the amount of price inflation that might be due to the defective communication because it assumes that the entirety of the communication was defective. All of our estimates herein therefore represent *alleged* potential investor losses and should not be construed as legally recoverable economic losses for shareholders eligible for compensation.

E. Structure of the Report

8. **Section II** provides a summary of our conclusions. **Section III** describes background information on the Settlement Agreement between Ageas and claimants' organizations. **Section IV** presents the theoretical framework and economic principles underlying the estimation of economic losses. We define and estimate the potential price inflation for the three reference periods. We also estimate the number of corresponding Fortis shares that may qualify for compensation from an economic perspective. **Section V** discusses the reasonableness of the Settlement Agreement based on the total amount awarded, as well as those awarded to the subgroups of active and non-active claimants who purchased Fortis shares during the reference periods. **Section VI** reviews relevant settlement metrics for comparable settlements that have taken place in recent years using both a comprehensive settlement agreement database maintained by Analysis Group and estimates reported in the literature. **Section VII** concludes.

II. SUMMARY OF CONCLUSIONS

9. Based on our review of available information and data, we find that the principles set forth in the Settlement Agreement between Ageas and claimants' organizations fairly compensate eligible shareholders for potential economic losses attributable to allegedly defective communications by Fortis during the three reference periods being claimed in this settlement.

10. This conclusion is based on well-grounded economic principles, which we use to:

    a. Estimate the potential price inflation per share for each reference period;

b. Calculate the number of Fortis shares that potentially qualify for compensation;

c. Compare our estimated potential aggregate economic losses to the compensation outlined in the Settlement Agreement for different categories of eligible shareholders; and

d. Review similar settlements that have taken place in recent years based on metrics obtained from the literature and from a database of historical settlement agreements involving the trading of common stocks.

11. To estimate the potential price inflation per share for each reference period, we use the standard framework of event studies, which relies on a market model to separate the impact of market-wide fluctuations from the impact of company-specific information when analyzing variations in the company's stock price. Price inflation estimates therefore provide a measure of how much the stock price reacted to a communication. Our estimates are based on intraday data and measure the reaction of the market in the 15 minutes following each communication of interest.[3]

12. Next, we estimate the number of shares that could potentially qualify for compensation from an economic perspective – i.e., shares bought during a reference period (at an allegedly inflated price) and held until the end of that reference period (in other words, not resold at the same inflated price, which would cancel out any potential economic loss). We obtain upper bounds on estimates of regular shares that were retained in each reference period based on three scenarios of the two trader model.[4] We also review studies in the economic literature pertaining to take-up rates, i.e., the proportion of eligible claimants who come forth with a valid claim and collect compensation. We find that take-up rates in securities class action settlements typically range from 20 to 35%. We then combine these estimates to calculate the total number of shares that could potentially qualify for compensation and be claimed as part of the Settlement Agreement. In order to test the robustness of the Settlement Agreement to high take-up rates, we assume a 100% take-up rate for active claimants and a range of 20 to 30% take-up rate for non-active claimants. Together these take-up rate assumptions yield a blended take-up rate of 39 to 46%, which is higher than the range typically reported in the literature.[5]

[3] We also perform sensitivity analyses using 30 and 45 minute windows.

[4] Although the two-trader model is not accurate, we use such model for illustrative purposes given the limited availability of transaction data for all potential claimants.

[5] Blended take-up rate is calculated by taking the weighted average of the assumed take-up rates for active and non-active claimants, where the weights are given by each claimant group's proportion of eligible shares.

13. Next, we provide a comparison of the per share compensation for non-active buyers stipulated in the Settlement Agreement with our potential price inflation estimates – namely, €0.68 per share in the first reference period, €0.65 per share in the second reference period, and a range of €0 to €0.23 per share in the third reference period. As sensitivity checks, we also provide potential inflation estimates calculated with varying assumptions. We then also present potential price inflation estimates with interest compensation. When comparing the range of potential price inflation estimates to the per share settlement, we find that the per share settlement compensation for non-active buyers often fall within the range of our potential economic loss estimates. We conclude that both active and non-active claimants are well compensated for potential economic losses based on the per share settlement compensation, and that these amounts are therefore reasonable. Next, we analyze the total amounts allocated in the settlement and the impact of potential dilution that could occur if the observed take-up rate is larger than anticipated, in which case the per share compensation might be less than those proposed in the Settlement Agreement. Again, we find that both active and non-active claimants remain well compensated even in the presence of a high take-up rate of 30% for non-active claimants, in particular when compared to literature estimates.

14. Finally, we compare the proposed settlement amounts as a proportion of estimates of potential economic loss to those of past settlement agreements using both literature estimates and those calculated from an Analysis Group-maintained database of historical settlement data covering over 1,400 settlement agreements involving the trading of common stocks in securities litigation matters filed since 1996. Based on the comparison with historical settlements from the database, we find that the proposed Settlement Agreement is larger than the settlement amount that would be implied by past settlement agreements with similar maximum market capitalization decline.[6] Similarly, based on studies from the economic literature that quantify settlement amounts as a proportion of different metrics, we find that the proposed Settlement Agreement is larger than settlement amounts implied by findings in the literature.

15. Our detailed findings and conclusions follow in this report and its appendices.

[6] Results from sensitivity analyses did not substantially change our primary findings.

III. BACKGROUND ON THE PROPOSED SETTLEMENT AGREEMENT

16. On 14 March 2016, Ageas and claimants' organizations, Deminor, Stichting FortisEffect, Stichting Investor Claims Against Fortis (SICAF), and Dutch Shareholder Association VEB, announced that they reached a Settlement Agreement regarding all civil proceedings against Fortis.[7] These civil proceedings involved claims of economic losses based on alleged defective communications by Fortis during the three reference periods being claimed in this settlement: [8]

- **Reference period 1**: 21 September - 7 November 2007 in the context of Fortis' acquisition of parts of ABN AMRO and its capital increase through a rights issue. On 21 September 2007, Fortis announced the launch of a rights issue for a total amount of €13.4 billion in upcoming days and provided the market with an update on its financial performance. On 24 September 2007, Fortis published the prospectus for the rights issue and trading on these rights began the following day. On 8 November 2007, Fortis disclosed its results for the third quarter of 2007, which included detailed information on its direct and indirect exposure to U.S. subprime loans. Claimants have argued that such detailed information should have been disclosed earlier, as early as 21 September 2007.

- **Reference period 2**: 13 May - 25 June 2008 in the context of the announcement of Fortis' solvency plan. On 26 June 2008, Fortis announced the acceleration of its solvency plan, consisting of *(i)* the decision not to pay an interim dividend (and pay the annual dividend in shares), *(ii)* an immediate accelerated book-built equity offering of €1.5 billion, *(iii)* a capital relief and disposal programme with an expected deferred impact of €3.5 billion, and *(iv)* the planned issuance of additional hybrid subordinated bonds for an amount of up to €2 billion. Claimants have argued that such information should have been disclosed earlier, as early as 13 May 2008.

- **Reference period 3**: 29 September - 3 October 2008 in the context of Fortis' divestment of banking activities and Dutch insurance activities. During the weekend of 27-28 September 2008, the governments of Belgium, The Netherlands and

[7] Ageas Press Release, "Regulated information – Ageas, Deminor, Stichting FortisEffect, SICAF and VEB reach agreement aiming at settling all Fortis civil legacies," 14 March 2016, available at http://bit.ly/1RzaTX0. *See* also Settlement Agreement.

[8] Settlement Agreement, pp. 4-5.

Luxembourg, decided to intervene to prevent a potential bankruptcy of Fortis Bank and a severe systemic crisis. On 28 September 2008, the three governments jointly agreed to inject a total of €11.2 billion into Fortis Bank, each of them acquiring a 49% equity stake in the operations located in their respective jurisdictions. On 29 September 2008, before markets opened, Fortis issued a press release regarding the investment of €11.2 billion by the governments of Belgium, the Netherlands, and Luxembourg into Fortis. The press release stated that the measures would ensure the financial strength and stability of the company. On 29 September 2008, Fortis CEO Filip Dierckx gave an interview, with the Dutch broadcasting organisation (NOS), regarding the €11.2 billion investment and the plan to sell its stake in ABN Amro's consumer banking unit. During the TV interview with NOS, he stated his belief that stock prices would not continue to decline. On 30 September 2008, Fortis MeesPierson, a division of Fortis Bank in the Netherlands, sent a letter to its customers referring to the €11.2 billion Benelux investment. On 1 October 2008, Fortis made a statement on its website regarding the government capital injections and sent another letter to its customers suggesting it was in its strongest financial position ever. Claimants have argued that Fortis has communicated too optimistically on its new situation and prospects on 29, 30 September, and 1 October 2008.

17. Under the Settlement Agreement, Ageas has agreed, without admitting any wrongdoing, to pay a global amount of €1,204 million to eligible shareholders. Ageas and claimants' organizations have also agreed to principles that define certain concepts and categories of eligible shareholders as follows: [9]

- **Eligible shareholders**: any person who held eligible Fortis shares at any time between 28 February 2007 c.o.b.[10] and 14 October 2008 c.o.b.;[11]
- **Eligible shares** divided into six subclasses:[12]
    - the number of Buyer 1 Shares is, in respect of an Eligible Shareholder, the number of Fortis Shares held by that Eligible Shareholder on 7 November 2007 c.o.b. minus the number of Fortis Shares held by that

[9] Settlement Agreement, pp. 5-8 and Schedule 1.

[10] "c.o.b." means the moment trading closed on the stock exchanges of Amsterdam or Brussels as relevant on the relevant date. *See* Settlement Agreement, p. 28.

[11] Settlement Agreement, p. 5.

[12] Settlement Agreement, pp. 7-8.

Eligible Shareholder on 21 September 2007 o.o.b.[13] in as far as the difference is greater than zero (such Fortis Shares are referred to as the **"Buyer 1 Shares"** of that Eligible Shareholder);

- the number of Holder 1 Shares is, in respect of an Eligible Shareholder, the lower of the number of Fortis Shares held by that Eligible Shareholder on 7 November 2007 c.o.b. or 21 September 2007 o.o.b. (such Fortis Shares are referred to as the **"Holder 1 Shares"** of that Eligible Shareholder; and together with the Buyer 1 Shares the **"Period 1 Shares"**);
- the number of Buyer 2 Shares is, in respect of an Eligible Shareholder, the number of Fortis Shares held by that Eligible Shareholder on 25 June 2008 c.o.b. minus the number of Fortis Shares held on 13 May 2008 o.o.b. by that Eligible Shareholder in as far as the difference is greater than zero (such Fortis Shares are referred to as the **"Buyer 2 Shares"** of that Eligible Shareholder);
- the number of Holder 2 Shares is, in respect of an Eligible Shareholder, the lower of the number of Fortis Shares held by that Eligible Shareholder on 25 June 2008 c.o.b. or 13 May 2008 o.o.b. (such Fortis Shares are referred to as the **"Holder 2 Shares"** of that Eligible Shareholder; and together with the Buyer 2 Shares the **"Period 2 Shares"**);
- the number of Buyer 3 Shares is, in respect of an Eligible Shareholder, the number of Fortis Shares held by that Eligible Shareholder on 3 October 2008 c.o.b. minus the number of Fortis Shares held by that Eligible Shareholder on 29 September 2008 o.o.b. in as far as the difference is greater than zero (such Fortis Shares are referred to as the **"Buyer 3 Shares"** of that Eligible Shareholder);
- the number of Holder 3 Shares is, in respect of an Eligible Shareholder, the lower of the number of Fortis Shares held by that Eligible Shareholder on 3 October 2008 c.o.b. or 29 September 2008 o.o.b. (such Fortis Shares are referred to as the **"Holder 3 Shares"** of that Eligible

[13] "o.o.b." means the moment trading opens on the stock exchanges of Amsterdam or Brussels as relevant on a given date. *See* Settlement Agreement, p. 30.

Shareholder; and together with the Buyer 3 Shares the **"Period 3 Shares"**).

- **Active claimant** means an Eligible Shareholder, except for Excluded Persons,[14] who has taken an affirmative step to make a claim against a Releasee[15] in connection with the Events,[16] by:[17]
  (a) participating in a Dutch or Belgian court action against a Releasee, including by having its name on a complaint, request to voluntarily intervene in pending proceedings (verzoek tot vrijwillige tussenkomst) or writ of summons, or intervene in criminal proceedings, such action to be initiated before the date of execution of this agreement; or
  (b) having registered with or joined, before 31 December 2014, a Dutch or Belgian organisation, including the ACGs and the OACG, [18] which has initiated a court action against a Releasee, to be proven by a written agreement, registration form or support letter to the Fortis litigation, or in as far as individuals (including pension or management BVs set up for the benefit of a single person) are concerned, by evidence of payment of a membership fee to such organisation, and such Eligible Shareholder is included in the list to be presented by the ACGs or the OACG, to the Claims Administrator. Any Eligible Shareholder presenting itself as a constituent of the ACGs or the OACG without being on a list mentioned in the previous

[14] "Excluded Persons" means any person currently named as a defendant in one or more of the legal proceedings as set out in Recital (D) pending at the moment of execution of this agreement, but, in respect of the Underwriting Banks which are such a defendant, i.e. Merrill Lynch International, BNP Paribas Fortis SA/NV, ING Bank N.V., Coöperatieve Raiffeisen-Boerenleenbank B.A. and Fox-Pitt, Kelton Ltd., only for any Period 1 Shares, Period 2 Shares or Period 3 Shares which such Underwriting Bank held at its own risk and expense. Settlement Agreement, p. 29.

[15] *See* Settlement Agreement, Schedule 1. The Releasees include: (i) Ageas and the Subsidiaries, (ii) all directors, officers, and other personnel of Ageas and the Subsidiaries who have in one way or the other worked for or have been associated with Ageas and the Subsidiaries, (iii) all Underwriting Banks, and (iv) all auditors, advisers, counsel, and insurers of the aforementioned persons and their personnel and officers and directors. Settlement Agreement, p. 12.

[16] *See* Settlement Agreement, pp. 4-5. In 2007 and 2008, certain events took place in respect of Fortis (the "Events"), including but not limited to (i) Fortis' communication or lack thereof to the market in September and October 2007 regarding its exposure to subprime, in May and June 2008 regarding its solvency and liquidity position and the remedies required in order to complete the takeover of ABN AMRO, and in September and October 2008 regarding (the run up to) the break-up of Fortis; and (ii) its policy with respect to its solvency position and generally its policy with regard to the takeover of ABN AMRO.

[17] Settlement Agreement, p. 26.

[18] The Active Claimant Groups (ACG) include Deminor, Stichting Investor Claims Against Fortis (SICAF), and Dutch Shareholder Association VEB. Stichting FortisEffect is defined as the Other Active Claimant Group (OACG). Settlement Agreement, pp. 4-5.

sentence has to provide specific written information to the Claims Administrator evidencing that such Eligible Shareholder qualifies as an active Claimant as meant in this sub (b). Any dispute in this respect will be decided by the Dispute Committee; or

(c) a current institutional partner of an ACG, to be proven by evidence of a (former) membership of such ACG at least up to 31 December 2014 and payment of a membership fee to such ACG prior to this date, provided that Ageas must have been notified of such institutional partner prior to the signing of this agreement and the number of such institutional partners is limited to five (5) per ACG;

- **Non-active claimants**: any eligible shareholder not being an active claimant except for Excluded Persons.[19]

18. The Settlement Agreement provides a detailed description of the compensation rule for valid claims put forth by eligible shareholders who bought or held eligible shares during any of the three reference periods until the end of the related reference period.[20] Eligible shares are categorized by 1) whether the shareholder was a buyer or a holder[21] and 2) whether the shareholder is an active claimant or a non-active claimant in the current matter.[22] These two sets of criteria categorize eligible shares into four subclasses: 1) Active – Buyer, 2) Active – Holder, 3) Non-active – Buyer, and 4) Non-active – Holder.[23] Active claimants are entitled to a total compensation of €795.9 million and non-active claimants are entitled to a total compensation of €407.8 million.[24] Together, the total settlement amount for all eligible shares and shareholders represent €1,203.7 million.

19. The Settlement Agreement is currently pending approval of the Amsterdam Court of Appeal in accordance with the Dutch Act on Collective Settlement of Mass Claims ("WCAM procedure").

[19] Settlement Agreement, p. 30.

[20] Compensation is also awarded to holders outside of the three reference periods.

[21] Long-term retail shareholders are accounted for within the category of holders.

[22] Settlement Agreement, p. 7.

[23] Non-active claimants are entitled to a compensation amount of: €0.38 per Buyer share and €0.19 per Holder share for Period 1; €0.85 per Buyer share and €0.43 per Holder share for Period 2; €0.25 per Buyer share and €0.13 per Holder share for Period 3. Active claimants are entitled to a compensation amount of: €0.56 per Buyer share and €0.28 per Holder share for Period 1; €1.28 per Buyer share and €0.64 per Holder share for Period 2; €0.38 per Buyer share and €0.19 per Holder share for Period 3. *See* Settlement Agreement, pp. 34-35.

[24] Settlement Agreement, p. 36.

In its review procedure, the Court will analyze, among other factors, the "fairness" of the Settlement Agreement.

IV. ANALYTICAL FRAMEWORK FOR ESTIMATING ECONOMIC LOSSES

20. This section provides an overview of the economic principles underlying the estimation of potential economic losses. We present the concept of price inflation and the economic principles on which its estimation should be based. We then provide corresponding estimates of potential price inflation for each of the three reference periods under the assumption that Fortis' communications were entirely defective. We also calculate the number of shares that may qualify for compensation. Finally, we review evidence from the economic literature on the proportion of shareholders who come forth to claim compensation (the "take-up rate") and adjust the corresponding qualifying shares accordingly for each reference period.

A. Estimation of Potential Price Inflation

1. Event Study Methodology in Financial Economics

21. In financial economics, the efficient market hypothesis states that stock prices fully reflect all available information, including any material misrepresentation.[25] Under the efficient market hypothesis, price changes that occur around public announcements will reflect the information included in those announcements. Stock prices react to announcements with firm-specific and/or market-wide information. To distinguish between the impacts of these two types of information, economists rely on event studies.[26]

22. Event studies typically use market models to statistically estimate the impact of particular events – such as mergers, earnings announcements, or alleged misrepresentations or omissions – on

[25] Fraud-on-the-market theory, a derivative of the efficient market hypothesis applied in U.S. securities litigation, establishes that investors rely on the market price of a stock as an accurate reflection of its value. In this way, fraud-on-the-market theory protects investors from needing to prove that they relied on an alleged misrepresentation or omission at the time of their stock purchase or sale. *See* Mark L. Mitchell and Jeffrey M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer* Vol. 49, No. 2 (1994): 545-590, at 547 and 557 ("Mitchell and Netter (1994)"). *See* also Andrew W. Lo, "Efficient Markets Hypothesis, " in *The New Palgrave Dictionary of Economics*, ed. Steven N. Durlauf and Lawrence E. Blume (London: Palgrave Macmillan, 2008).

[26] *See* S. P. Kothari and Jerold B. Warner, "Econometrics of Event Studies," in Handbook of Corporate Finance: Empirical Corporate Finance, ed. B. Espen Eckbo (Amsterdam: Elsevier B.V., 2007), 3-36. In a European litigation context, *see* Declaration and Expert Report of Scott D. Hakala, Ph.D., CFA Regarding the Proposed Settlements and Plan of Allocation in Connection with the Petition to Declare Binding the Proposed Settlements Involving Stichting Converium Securities Compensation Foundation, 22 February 2010.

stock prices. In a market model, a stock return depends on a) fluctuations in market-wide returns and b) the stock's responsiveness to fluctuations in market-wide returns. The portion of the stock return that cannot be explained by market-wide returns is commonly referred to as the "abnormal return." The terminology "abnormal" does not indicate that this portion of the return is inappropriate but only that it is generated by factors other than market-wide fluctuations. Abnormal returns are therefore generally used to substitute for the impact of firm-specific information.[27]

23. Stock returns never move perfectly in tandem with the overall market, even in the absence of firm-specific information. Therefore one must consider whether the calculated daily abnormal return is large enough to be considered unusual or unlikely to have occurred simply by chance, i.e., whether it is "statistically significant."[28] Formal tests of the statistical significance of abnormal returns compare the abnormal return to a measure of its typical historical variation. If the abnormal return is large relative to this variation, it is unlikely to have occurred by chance and is considered statistically significant. Statistical significance provides a scientific, objective method to assess if the information associated with an abnormal return is material, i.e., if it would be important to a reasonable investor in valuing a stock and making investment decisions.[29] If the abnormal return is statistically significant, and all the associated information is deemed to be either a misrepresentation or corrective, then the abnormal return can be used to calculate the artificial price inflation per share associated with that information.

24. The price inflation estimate is essentially the abnormal return estimate converted into a difference in price levels. The conversion takes place in two steps. The first step is to calculate the difference in price levels from time t-1 (before the information is shared) to time t (after the information is shared and the market reacts to it). Some of this difference can be explained by general market-wide fluctuations taking place at the same time. This "explained" portion of the price difference is estimated from the market model relationship. This relationship gives us the predicted share price, i.e., the price that is predicted to be observed, on average, in the absence of company-specific information. In the second step, the estimated price inflation is simply calculated as the remaining, unpredicted component of the observed price difference: the difference between the observed price and price predicted absent any company-specific

[27] **Appendix C** provides more information on the event study methodology used herein.

[28] *See* Mitchell and Netter (1994), p. 564.

[29] *See* Nicholas I. Crew, Kevin L. Gold, Marnie A. Moore, "Federal Securities Acts and Areas of Expert Analysis," in *Litigation Services Handbook: The Role of the Financial Expert*, ed. Roman L. Weil, Daniel G. Lentz and David P. Hoffman (Somerset: John Wiley & Sons, 2012), pp. 10 and 23 ("Crew at al. (2012)").

information. Price inflation is viewed as a measure of how much the price level reacted to the firm-specific information disclosed.

25. Price inflation measures how much the share price reacted to all the information disclosed between time *t*-1 and time *t*. If the information is only partially defective, for example too optimistic or missing appropriate caveats, then the price inflation is likely to significantly overestimate the impact of the part of the communication that was defective. The price inflation calculation assumes that the entire share price reaction is due to the defective nature of the communication. In reality, it is more likely that a portion of the share price reaction would still have been observed if the communication had been less optimistic or more nuanced.

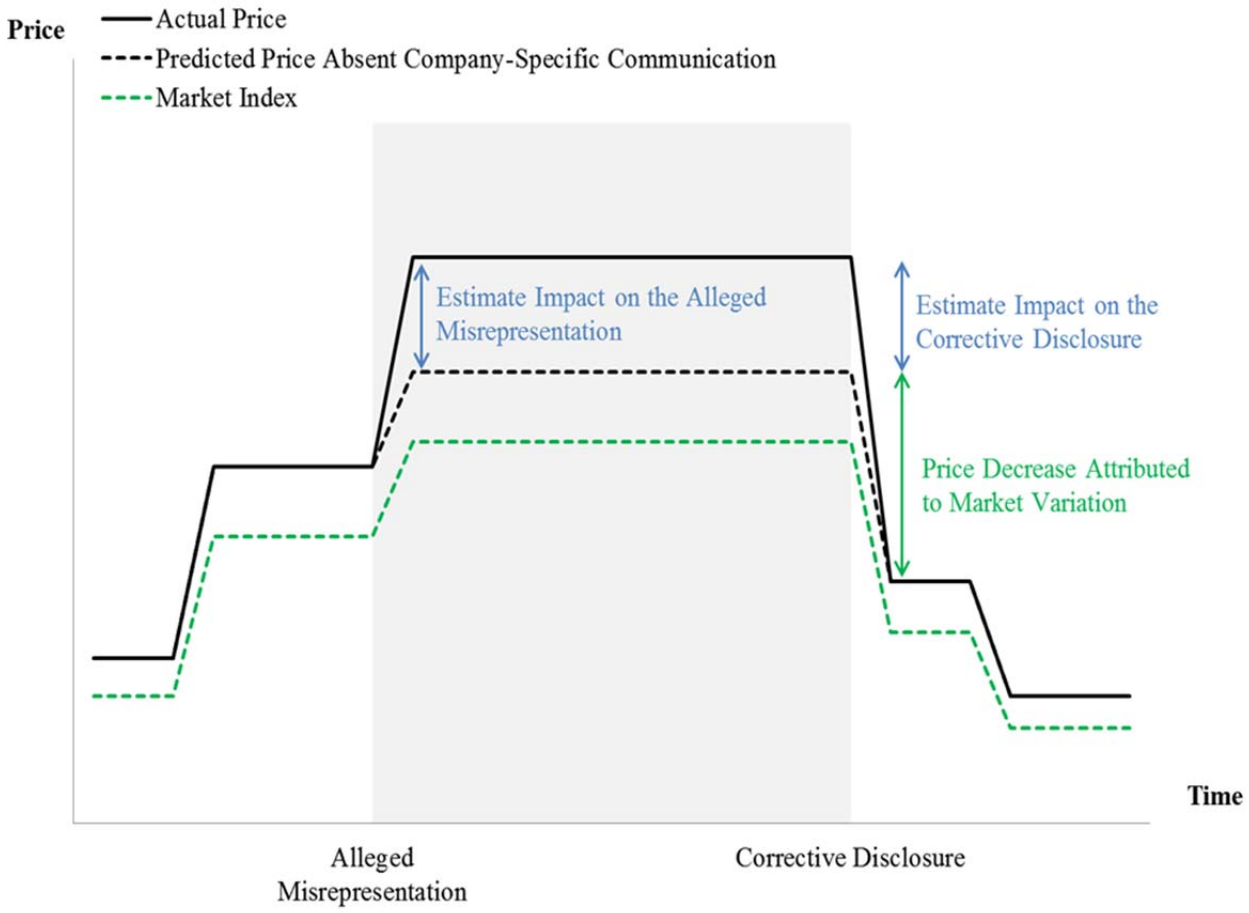
26. There are generally two times at which price inflation can be estimated to measure the impact of allegedly defective communications. One approach is to estimate the price inflation at the time of the corrective disclosure. A corrective disclosure is a disclosure of information that corrects the allegedly defective information. This approach implicitly assumes that the price change associated with the corrective disclosure is the same as the price change associated with the earlier allegedly defective communication. Alternatively, another approach is to estimate the price inflation at the time of the allegedly defective communication. Both approaches give guidance on the extent to which prices would be artificially high due to an allegedly defective communication until the information was corrected.[30]

27. Both approaches are illustrated in **Figure 1**. The hypothetical observed stock price is shown with a solid black line. For simplicity, we illustrate stock prices as moving in lockstep with general market-wide movements in the absence of company-specific information. As discussed in greater detail below, we account for these market-wide movements by using a representative market index. The market index levels are shown with a dashed green line. The figure illustrates the two approaches by showing a price increase following the (allegedly defective) communication of firm-specific information. Some of this increase can be attributed to movements in the market, shown by the dashed black line. The remainder is the price inflation estimate illustrated in blue. Similarly, we observe a price decrease following the corrective disclosure. After accounting for the amount of this decrease that is explained by market-wide movements, the remainder is the price inflation estimate at the time of the corrective disclosure. As the figure suggests, once price inflation has been estimated it is generally assumed to have been constant at all times between the

[30] *See* Crew et al. (2012), p. 11.

miscommunication and corrective disclosure dates. The time period between the alleged misrepresentation and the corrective disclosure dates is referred to as the inflation period.

Figure 1: Illustration of Price Inflation Estimation



28. Whether price inflation is estimated at the time of the alleged misrepresentation or the time of the corrective disclosure depends on the nature of the allegations and whether simultaneous events or communications took place at the time of the allegedly defective communication or disclosure. For example, suppose that it is alleged that information was omitted, i.e., information that was revealed too late. In this case, the price impact of the omitted information can only be assessed on the corrective disclosure date – when the information was actually disclosed. Alternatively, it may be alleged that the communication was a misrepresentation. In this case, the price impact can theoretically be measured at either time. One must then consider the presence of confounding factors at the time of the miscommunication or the corrective disclosure. Confounding factors are other independent events taking place simultaneously or non-defective information communicated at the same time. If both defective and non-defective information were

communicated simultaneously, the methodology will calculate the aggregate impact of both types of information.[31] It is therefore preferable to use the time (alleged miscommunication or disclosure) at which there are the fewest confounding events.

29. When price inflation is measured based on a corrective disclosure, changes to the inflation period start date do not affect price inflation estimates; they only affect estimates of potential economic losses by changing the number of shareholders that may have been affected by the inflated price. Likewise, when price inflation is measured at the time misleading information is disclosed, changes to the inflation period end date only affect the number of shares and shareholders affected by the inflated price.

30. The price inflation estimates measure how much the price of each individual share was inflated due to the allegedly defective communication. Aggregate economic losses are then calculated by multiplying the estimated price inflation by the number of shares qualifying for compensation (the "qualifying shares"). From an economic perspective, shares qualify for compensation only if they were purchased by investors during the inflation period and not resold until after that period. These investors are then compensated for "overpaying" for the shares they bought during the inflation period. When available, actual plaintiff trading records are used to calculate the number of shares and/or shareholders that qualify for compensation. If trading records are not available, estimates of trading behavior using a trading model can be used, as we discuss below in Section IV.B.[32]

2. Potential Price Inflation Estimates

31. **Figure 2** shows the evolution of daily Fortis share prices and traded volumes on the Euronext Amsterdam Exchange from 2007 to 2008, highlighting the three reference periods and corrective disclosures. Since claimants' organizations allege that Fortis omitted important information in periods 1 and 2, we calculate abnormal returns based on the timing of the corrective disclosures.[33]

32. On 8 November 2007, Fortis issued a press release at 07:32 in the morning regarding its quarterly earnings. The announcement disclosed detailed information on Fortis' exposure to CDOs (Collateralized Debt Obligations) and U.S. subprime mortgage loans. Claimants have alleged that

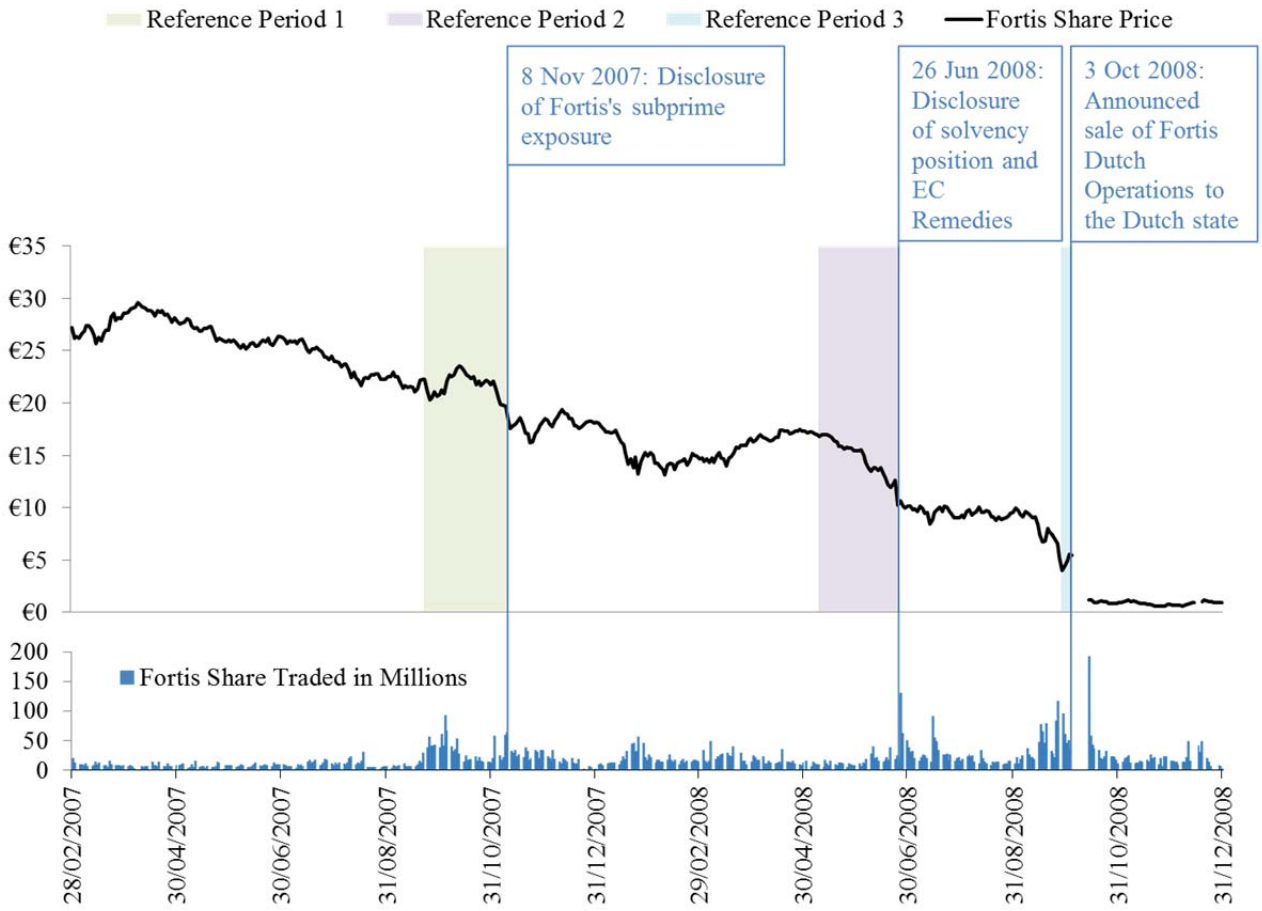
[31] Separating the two types then requires independent estimates of the impact of the non-defective information, which may or may not be available depending on the nature of the information.

[32] *See* Crew et al. (2012), p. 7.

[33] The claims involve a mix of allegedly overly optimistic communication and delayed information. Therefore, the corrective disclosures both rectify past communications that were allegedly overly optimistic and represent allegedly delayed information.

this detailed information should have been disclosed earlier, as early as 21 September 2007 when Fortis announced the launch of its rights issue and provided the market with an update on its financial performance.[34] Because the allegation involves delayed information, we use the press release from 8 November 2007 as the corrective disclosure for the purpose of estimating the potential price inflation associated with the alleged defective communication. The Fortis share price declined by 7.5% on 8 November 2007. The Fortis quarterly earnings announcement also disclosed that Fortis earnings were below expectations.[35]

Figure 2: Evolution of Fortis Share Price and Volume



Source:
[1] Bloomberg L.P.

[34] Fortis, "Fortis nine-month net profit at EUR 3.6 billion, as banking and insurance continued strong commercial performance in summer months," 8 November 2007, available at http://hugin.info/134212/R/1166907/228673.pdf.

[35] Fortis, "Fortis nine-month net profit at EUR 3.6 billion, as banking and insurance continued strong commercial performance in summer months," 8 November 2007, available at http://hugin.info/134212/R/1166907/228673.pdf.

33. On 26 June 2008, Fortis issued a press release with detailed information on its solvency at 08:03 in the morning. The press release also announced an accelerated book building offering to strengthen the capital base and the decision not to pay an interim dividend (and pay the annual dividend in shares).[36] Claimants have argued that such information should have been disclosed earlier, as early as 13 May 2008. We therefore use the date of 26 June 2008 as the corrective disclosure date on which to estimate the impact of the allegedly delayed communication and of any other overly optimistic communications during the period, both of which would be "corrected" by the detailed press release issued on 26 June 2008 prior to the opening of the market. The share price declined by 21.5% on 26 June 2008.

34. The estimation of price inflation for the third reference period is complicated by the presence of numerous confounding events during the period and at the time of the 3 October 2008 announcement, which took place on the eve of the weekend as of which the trading of Fortis share was suspended due to other simultaneous events. Claimants have alleged that some of Fortis' communications during the week of 29 September 2008 painted an overly optimistic picture of its financial position, including a press release regarding the investment of the €11.2 billion by Benelux governments; an interview given by Fortis CEO Filip Dierckx; two client letters, sent on separate days; and a posting on the Fortis website. During the week of 29 September 2008, the Dutch government continued to negotiate the terms of its investment in Fortis the preceding weekend. On 3 October 2008, after markets closed, Fortis announced that it had disposed of all of its Dutch operations to the Dutch state for a total consideration of €16.8 billion.[37] During the weekend of 4-5 October 2008, however, the Belgian State (with some support from Luxembourg) acquired the residual stake it did not hold in Fortis Bank and agreed to sell a majority stake to BNP Paribas. Given the significant uncertainty regarding the residual activities of Fortis and the viability of the conglomerate, trading of Fortis shares was suspended and did not resume until 14 October 2008.[38]

35. The announcement of the sale of Fortis' Dutch operations to the Dutch state might be considered a corrective disclosure to any alleged miscommunications during that period because it corrects the alleged overly optimistic (or not sufficiently cautious) statements regarding the investment by

[36] Fortis, "Fortis accelerates the execution of its solvency plan," 26 June 2008, available at http://hugin.info/134212/R/1231205/261677.pdf).

[37] Fortis, "Fortis statement on transaction with Government of the Netherlands," 26 June 2008, available at http://hugin.info/134212/R/1256877/274191.pdf. Also see "Netherlands Buys Fortis's Dutch Operations for EU16.8 Billion," Bloomberg L.P., 3 October 2008, accessed 8 May 2015.

[38] "BNP Paribas to Purchase Fortis's Units in Belgium, Luxembourg," Bloomberg L.P., 6 October 2008, accessed 10 May 2015.

Belgian, Dutch and Luxembourg governments. However, it does more than just caveat the previous information and includes new information that was not available earlier, which would affect the estimation of the price inflation on that date. Furthermore, the timing of the announcement leads to important confounding events. Because this announcement occurred after markets closed on 3 October 2008, the price decline associated with it would typically be estimated using the price decline between 3 October 2008 and the next trading day, 6 October 2008. However, given that trading was suspended and only resumed 11 days later, Fortis was a dramatically different company when its stock started trading again and the use of the observed return from 3 October to 14 October 2008, to calculate the impact of the corrective disclosure, would significantly overestimate its impact. Too much information was announced and too many events took place during the 11 days of the Fortis stock trading suspension.

36. Given these issues, it is reasonable to consider the times at which each alleged miscommunication took place. Allegations of defective communications in the third reference period are related to specific miscommunications. Rather than relying on the price change on a corrective disclosure date, we can use price changes at the time of specific miscommunications.[39]

37. Because multiple communications and firm-specific events occurred within each day of the third period, we obtain intraday data (i.e., price and volume information for each minute of each trading day) to measure the impact of the alleged miscommunications based on the change in the Fortis price following each of these communications. We then estimate abnormal returns and potential price inflations for each miscommunication separately. We use intraday data on Fortis share prices on the Euronext Amsterdam Exchange to analyze the Fortis share price and two STOXX indices to capture market-wide and industry-wide movements taking place during the reference period.[40] To provide a methodology that is consistent across reference periods, we also estimate the potential price inflation for the first and second reference periods using intraday data.

[39] There are five allegations in particular that have been considered overly optimistic: a press release regarding the investment of the €11.2b by Benelux governments; an interview given by Fortis CEO Filip Dierckx; two client letters, sent on separate days; and a posting on the Fortis website. *See* Amsterdam Court of Appeal, "Uitspraken," 29 July 2014, accessed 9 May, 2015, available at http://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:GHAMS:2014:3005 (Free translation). See sections 4.5.2 and 4.5.3 in particular.

[40] Market-wide fluctuations are typically accounted for by using fluctuations in relevant stock market indices ("factors"). At a given time, these indices reflect the performance of the relevant markets. The exact number of indices used and the specific indices chosen can differ across applications. In securities litigation, the common practice is to use market models with one or two factors: one factor reflecting fluctuations in the market across industries and another factor reflecting specific market fluctuations in the relevant industry. The two STOXX indices we use are the STOXX Europe 50 and STOXX Europe 600 Banks. Whenever available, we use data for Fortis share prices and STOXX index values from Bloomberg. These data were not available from Bloomberg for the year 2007. Intraday data on Fortis share prices in 2007 were obtained from Euronext and the data for the

38. Several studies have shown that stock prices tend to internalize new information quickly.[41] The reaction of stock prices to an announcement can occur within about 10 minutes.[42] In the major and most liquid financial markets, the assessment of news announcements typically allows for a response during the 10 to 15 minutes after a disclosure.[43] In our analysis, we therefore consider a response time of 15 minutes. Maintaining a small time window reduces the risk that the estimated share price inflation will be affected by other communications that may take place at other moments in the day. As sensitivity checks, we also present potential inflation estimates considering a response time of 30 and 45 minutes, which are shown in **Table 6**.

39. The corrective disclosures for periods 1 and 2 occurred after the market closed on the last day of each reference period: 7 November 2007 and 25 June 2008. The abnormal return calculation therefore uses the difference between the price at which the market closed on the last day of the reference period and the price at the end of the first 15 minutes of trading on the following day. For reference period 3, claimants allege that specific Fortis communications were too optimistic. We similarly calculate the abnormal returns associated with the Fortis communications based on the difference between the last price available at the time of the alleged miscommunication and the price at the end of the next 15 minutes of trading for each alleged miscommunication. When statistically significant, abnormal returns are used to calculate price inflation, which is the difference between the observed price and the price predicted by the market model in the absence of any Fortis communication.

a. First Reference Period Ending 7 November 2007

40. We show the pattern of intraday Fortis share prices, Fortis traded volumes, and the value of STOXX indices on 7-8 November 2007 in **Figure 3** below.[44] The alleged corrective disclosure is

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STOXX Europe 50 index were purchased from Tick Data Inc. Tick Data Inc. is a provider of historical intraday stock, futures, options, and forex data. More information is available at: https://www.tickdata.com/. Data on the STOXX Europe 600 Banks was not available from either source for the year 2007.

[41] *See* for example, Mitchell and Netter (1994), p. 557; *see* also, Sok Tae Kim, Ji-Chai Lin, and Myron B. Slovin, "Market Structure, Informed Trading, and Analysts' Recommendations," *Journal of Financial and Quantitative Analysis*, Vol. 32, No. 4 (1997): 507-524; Jason T. Greene and Susan G. Watts, "Price Discovery on the NYSE and the NASDAQ: The Case of Overnight and Daytime News Releases," *Financial Management*, Vol. 25, No. 1 (1995): 19-42.

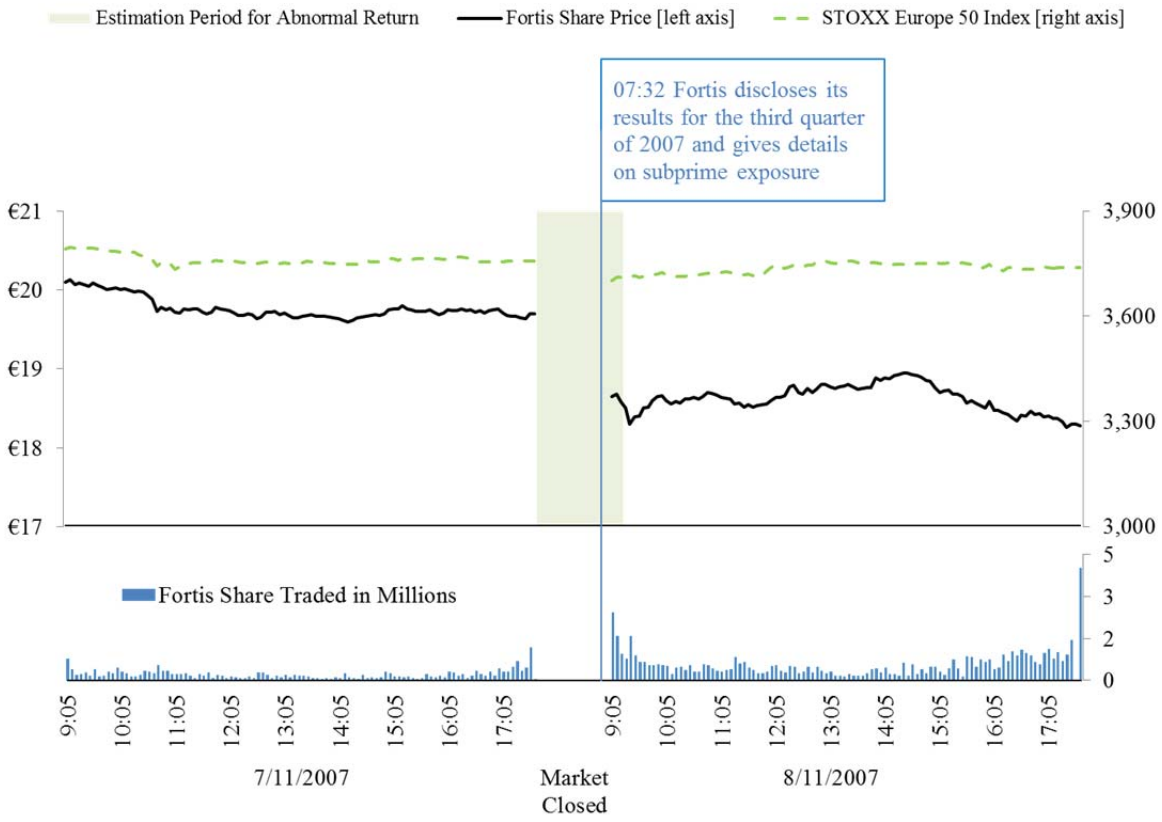
[42] *See* Torben Anderson, Tim Bollerslev, Francis X. Diebold, and Clara Vega, "Micro Effects of Macro Announcements: Real-time Price Discovery in Foreign Exchange," *American Economic Review*, Vol. 93, No. 1 (2003): 38-62 at 49-50.

[43] *See* Refet Gurkaynak and Jonathan Wright, "Identification and Inference Using Event Studies," *The Manchester School*, Supplement (2013): 48-65 at 53.

[44] Data for the STOXX Europe 600 Banks Index are shown for the second and third reference periods. Because its data are not available for 2007, the STOXX Europe 50 index is shown instead for the first reference period.

marked with a blue text box. The shaded area is used to denote the time over which abnormal returns are calculated. Intuitively, our price inflation estimates are the change in Fortis share price between the beginning and end of each shaded area after removing the component of the price change attributable to market-wide fluctuations (green dotted line).

Figure 3: Fortis Share Price – 7 November 2007 to 8 November 2007



Sources:
[1] Euronext.com
[2] Tickdata.com
[3] Bloomberg L.P.

41. As illustrated in **Figure 3**, share prices decreased by 5.8% (€19.7 to €18.59) between the close of the market on 7 November 2007 and 15 minutes after the Euronext Amsterdam Exchange opened on 8 November 2007. The STOXX Europe 50 Index also decreased by about 1.3% during this interval. Our estimates of the abnormal return and potential price inflation for the first period are presented in **Table 1.A**. After accounting for market-wide fluctuations, we estimate that there was a 3.6% decrease in the share price potentially attributable to the Fortis press release on 8

November 2007. We find this abnormal return to be statistically significant at the 5% level and calculate a corresponding potential price inflation of €0.68.[45]

Table 1.A: Price Inflation for the First Period, 21 September 2007 - 7 November 2007

Communication	Observed Return[2]	Abnormal Return[2],[3]	Potential Price Inflation Estimate
Exposure to CDOs and U.S. subprime loans[1]	-5.8%	-3.6%*	€ 0.68

[1] Fortis, "Fortis nine-month net profit at EUR 3.6 billion, as banking and insurance continued strong commercial performance in summer months," 8 November 2007, available at http://hugin.info/134212/R/1166907/228673.pdf. This announcement occurred at 07:32 in the morning on 8 November 2007.
[2] Observed and abnormal returns are computed based on the share price when the Euronext Amsterdam Exchange closed on 7 November 2007 and the prices within 15 minutes of the Exchange opening on 8 November 2007. Abnormal returns are computed based on market models estimated with intraday data.
[3] *p<0.5.

42. In the 8 November 2007 press release, Fortis also announced that earnings per share were below expectations. This type of announcement, in isolation, can be expected to have a negative effect on prices and therefore some of the -3.6% abnormal return is likely attributable to this information.[46] Our inflation estimate of €0.68 does not make any additional corrections for lower earnings. It should therefore be viewed as an upper estimate of potential price inflation during that period.

b. Second Reference Period Ending 25 June 2008

43. We show the pattern of intraday Fortis share prices, Fortis traded volumes, and the value of STOXX indices on 25-26 June 2008 in **Figure 4** below.[47] The alleged corrective disclosure is marked with a blue text box while other communications are presented in black text boxes. We use the shaded area to denote the time over which abnormal returns are calculated. Intuitively, our

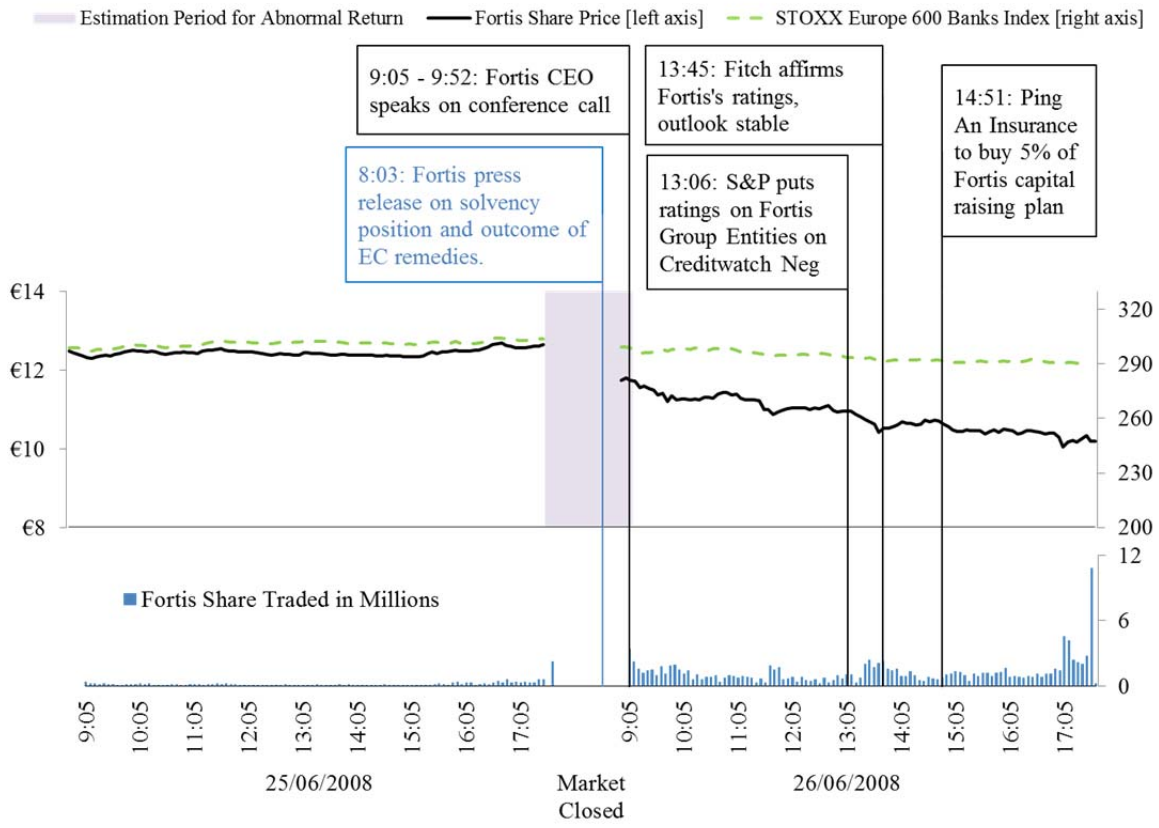
[45] As discussed in Appendix C, market models with one or two factors are common practice in securities litigation. The two factor approach is used in the sections below. Due to the unavailability of STOXX Europe 600 Banks index data in the year 2007, the first period estimates use a one factor market model with only the STOXX Europe 50 Index. Sensitivity analyses performed on the second and third period show that none of our main conclusions are affected by the use of a one versus two factor model.

[46] Financial economists often assume that the observed stock price is the best available empirical proxy for the intrinsic value of a stock – which can be written as the book value plus a discounted sum of discounted residual income. *See* Charles Lee, James Myers, and Bhaskaran Swaminathan, "What is the Intrinsic Value of the Dow?" *The Journal of Finance*, Vol. 54, No. 5 (1999): 1693-1741 at 1696-1699.

[47] Data for the STOXX Europe 600 Banks Index are shown for the second and third reference periods. Because its data are not available for 2007, the STOXX Europe 50 index is shown instead for the first reference period.

price inflation estimates are the change in Fortis share price between the beginning and end of each shaded area after removing the component of the price change attributable to market-wide fluctuations (dotted green line).

Figure 4: Fortis Share Price – 25 June 2008 to 26 June 2008



Source:
[1] Bloomberg L.P.

44. As illustrated in **Figure 4**, share prices decreased by 7.5% (€12.65 to €11.74) between the close of the market on 25 June 2008 and 15 minutes after the Euronext Amsterdam Exchange opened on 26 June 2008. The STOXX Europe 600 Banks Index also decreased by 1.5% during this interval; the STOXX Europe 50 Index decreased by 0.7%. Our estimates of the abnormal return and potential price inflation for the second period are presented in **Table 1.B.** After accounting for market-wide fluctuations, we estimate that there was a 5.4% decrease in the share price

potentially attributable to the Fortis press release on 26 June 2008. We find this abnormal return to be statistically significant at the 5% level and calculate a corresponding potential price inflation of €0.65.

Table 1.B: Price Inflation for the Second Period, 13 May 2008 – 25 June 2008

Communication	**Observed Return[2]**	**Abnormal Return[2],[3]**	**Potential Price Inflation Estimate**
Solvency position and EC remedies[1]	-7.5%	-5.4%*	€ 0.65

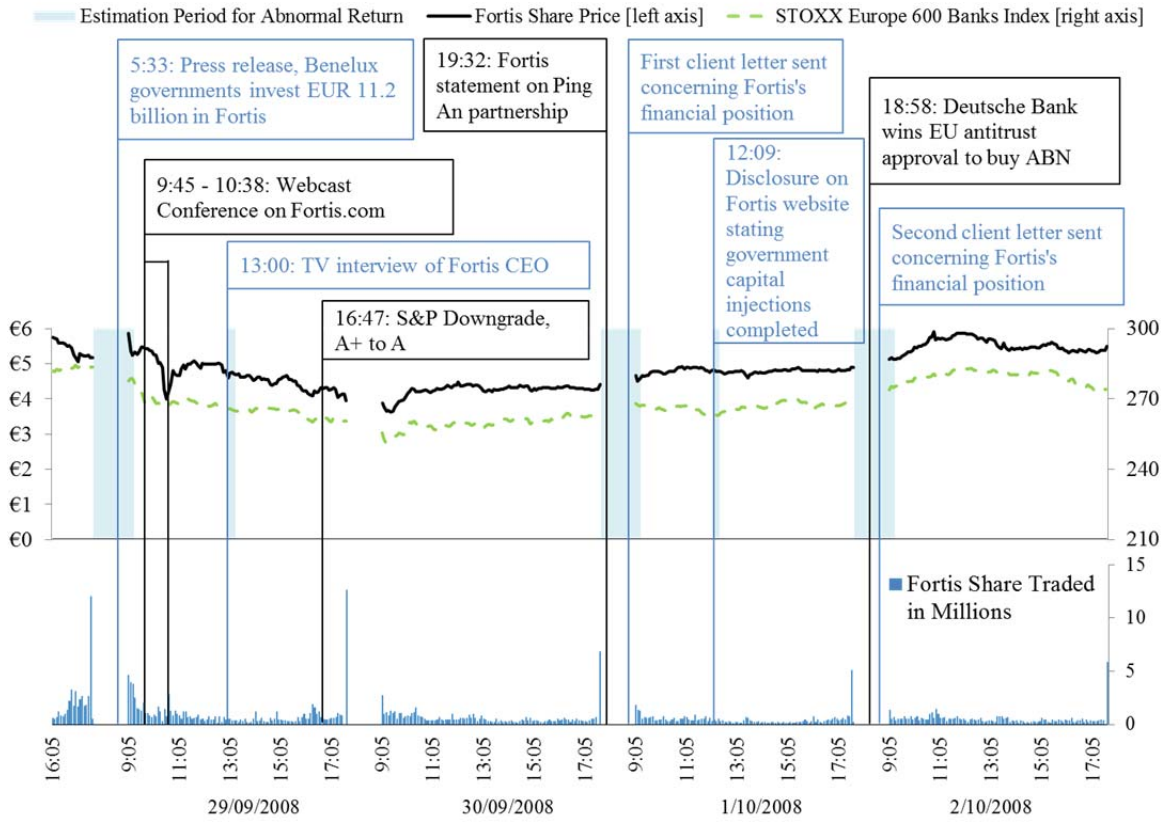
[1] Fortis, "Fortis accelerates the execution of its solvency plan," 26 June 2008, available at http://hugin.info/134212/R/1231205/261677.pdf. This announcement occurred at 08:03 in the morning on 26 June 2008.
[2] Observed and abnormal returns are computed based on the share price when the Euronext Amsterdam Exchange closed on 25 June 2008 and the prices within 15 minutes of the Exchange opening on 26 June 2008. Abnormal returns are computed based on market models estimated with intraday data.
[3] *p<0.05.

c. Third Reference Period Ending 3 October 2008

45. We show the pattern of intraday Fortis share prices, Fortis traded volumes, and the value of STOXX indices from 29 September to 2 October 2008 in **Figure 5** below.[48] Alleged miscommunications are marked with blue text boxes; other communications are presented in black text boxes. We use shaded areas to denote the time over which abnormal returns are calculated. Intuitively, our price inflation estimates are the change in Fortis share price between the beginning and end of each shaded area after removing the component of the price change attributable to market-wide fluctuations (dotted green line).

[48] Data for the STOXX Europe 600 Banks Index are shown for the second and third reference periods. Because its data are not available for 2007, the STOXX Europe 50 index is shown instead for the first reference period.

Figure 5: Fortis Share Price – 29 September 2008 to 2 October 2008



Source:
[1] Bloomberg L.P.

46. In its decision on these third period communications, the Amsterdam Court of Appeal states the following:

> "In the opinion of this Court, the above mentioned communications are – *taken together* – misleading in the sense of Section 5:58 Wft."[49]

As stated earlier, statistical significance provides a scientific, objective way to assess if information is material, i.e., if it was important to a reasonable investor in valuing a stock.[50] If, as opined by the Amsterdam Court, the five communications should be taken together, it is important to assess the statistical significance of the five communications taken together rather than in isolation as we have done thus far. We tested the statistical significance of the sum of all

[49] *See*, in particular, section 4.5.3 of the decision. Amsterdam Court of Appeal, "Uitspraak," 29 July 2014, accessed 9 May 2015, available at http://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:GHAMS:2014:3005 (italics added).

[50] See Crew et al. (2012), pp. 10 and 23.

five abnormal returns and found that the sum is not statistically significant at the 5% level. Therefore, the potential price inflation for all five communications taken together is actually €0.00 from an economic perspective.

47. If the five communications are not taken together, we obtain an estimate of price inflation for each communication. Our estimates of the abnormal return and price inflation for the third period are presented in **Table 1.C**.

Table 1.C: Price Inflation for the Third Period, 29 September 2008 – 3 October 2008

Communication	**Observed Return**	**Abnormal Return[6],[7]**	**Potential Price Inflation Estimate**
Benelux governments invest €11.2b[1]	1.3%	4.4%*	€0.23
TV Interview with CEO Filip Dierckx[2]	2.4%	3.0%	€0.14
Client Letter 1[3]	4.0%	0.8%	€0.04
Website Posting[4]	-0.9%	-1.4%	-€0.07
Client Letter 2[5]	4.7%	-0.6%	-€0.03

[1] The press release was made public at 5:33 in the morning before the Euronext Amsterdam Exchange opened on 29 September 2008. Fortis, "Governments of Belgium, Luxembourg and the Netherlands invest EUR 11.2 billion in Fortis," 29 September 2008, available at http://hugin.info/134212/R/1255002/273465.pdf. We examine share prices on 29 September 2008 immediately after the Exchange opened.
[2] The CEO gave a television interview on 29 September 2008. Amsterdam Court of Appeal, "Uitspraken," 29 July 2014, accessed 9 May 2015, available at http://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:GHAMS:2014:3005. We examine prices immediately after 13:00, when the news broadcast would have ended.
[3] Fortis MeesPierson, a division of Fortis Bank in the Netherlands, sent a letter to its customers on 30 September 2008. This letter was received by customers on 1 October 2008. We examine share prices on 1 October 2008 immediately after the Euronext Amsterdam Exchange opened.
[4] A statement was posted on the Fortis website on 1 October 2008. We examine share prices immediately after 12:09, based on a screenshot provided to us by counsel.
[5] Fortis sent a letter to its customers on 1 October 2008 and would have been received by customers on 2 October 2008. We examine share prices on 2 October 2008 immediately after the Euronext Amsterdam Exchange opened.
[6] Abnormal returns are computed based on market models estimated with intraday data.
[7] *$p<0.05$.

48. As illustrated in Figure 5, share prices increased by 1.3% (€5.18 to €5.25) between the close of the market on 26 September 2008 and 15 minutes after the Euronext Amsterdam Exchange opened on 29 September 2008. The STOXX Europe 600 Banks Index decreased by 1.8% during this interval; the STOXX Europe 50 Index decreased by 1.1%. After accounting for the market-

wide fluctuations, we estimate that there was a 4.4% increase in the share price potentially attributable to the Fortis press release on 29 September 2008. We found this abnormal return to be statistically significant at the 5% level and calculate the corresponding potential price inflation to be €0.23.

49. Share prices increased by 2.4% after the CEO television interview; the abnormal return associated with this interview was however not statistically significant. Similarly, the 0.8% abnormal return following the distribution of the first client letter is statistically indistinguishable from zero. There was a negative price return during the time of the website posting and an even larger negative (though not significant) abnormal return. A negative abnormal return suggests that prices were *lower* following the web posting. We also used alternative times around 12:09 during 1 October 2008 and still found no significant abnormal returns.[51] Finally, there was a negative non-significant abnormal return following the distribution of the second client letter. Therefore, the upper range of the price inflation estimate for the third period would be €0.23.[52]

50. Even if we consider the significance of the miscommunications separately – and therefore only the Benelux investment press release – as before, it is important to note that the abnormal return and price inflation will measure the impact of any firm-specific information released at, or around, the time of the disclosure. For example, regarding the Benelux investment press release, events other than the press release might have occurred during the weekend prior to 29 September 2008, which may have contributed to the estimated abnormal return. Therefore, our estimate of the price inflation due to this press release may be confounded with other factors and the price impact could very well be zero.

51. Moreover, claimants have alleged that facts were not communicated with sufficient clarity or important caveats. From an economic perspective, the potential price inflation associated with the lack of clarity or caveats would be the difference between observed prices and prices predicted had the communications been *adequate*. Our estimates correspond to the difference between the observed prices and the prices predicted had the communications *never happened*. If the disclosed

[51] These results are unsurprising given the limited movement of prices observed throughout the day on 1 October 2008, as shown in Figure 5.

[52] There was a webcast of the press conference on Fortis.com from 9:45-10:38 on 29 September 2008. The prices decrease dramatically throughout this webcast, which allowed for questions and clarification requests. Given that the conference has not been found to be misleading, one might argue that any potential price inflation resulting from the Benelux investment press release would not have lasted beyond the end of the webcast on 29 September 2008, which corrected any potential previous miscommunication. In such a case, given the short period the potential price inflation of €0.23 would have lasted, the average overall potential price inflation estimate for the Third Reference Period would be €0.03.

information is only partially defective, e.g., is too optimistic or missing appropriate caveats, our estimate is likely an upper bound on the real impact of the press release. The real impact, if any, of the omitted clarity and caveats would likely be a fraction of these estimates. The potential price inflation estimate of €0.23 should therefore be viewed as an upper estimate. Our potential price inflation estimates for the third period therefore range from €0.00 to €0.23, depending on the standard used.

B. Estimation of Shares Potentially Qualifying for Compensation

52. In this section, we estimate the number of shares that may qualify for compensation based on a model that is typically used by claimants to estimate qualifying shares in cases involving claims of defective communications: the Two-Trader Model ("TTM"). We also review the literature on take-up rates, which represent the proportion of qualifying claimants who actually come forth to claim and collect compensation for economic losses.

53. We use the term "qualifying shares" to describe shares that could potentially qualify for compensation from an economic perspective. These shares are distinguished from "eligible shares" described in Section III, which are shares that are entitled to compensation under the terms of the Settlement Agreement.

54. In most class action securities litigation, the ex-ante estimation of the number of shares that may qualify for compensation is not necessary because the per-share damage loss set by the Court can be collected ex-post by members of the class through the claims administration process. However, a measure of the potential number of shares qualifying for compensation can be useful for settlement purposes to obtain an estimate of the upper range of aggregate potential economic losses. For the purposes of our mandate, an estimate of the shares potentially qualifying for compensation is useful to evaluate the fairness and reasonableness of the Settlement Agreement.

55. From an economic perspective, whether a share can be considered as qualifying for compensation depends on the timing of its purchase and sale. Shares that were bought at an inflated price but also resold at an equally inflated price do not qualify for compensation. For instance, traders who bought and then resold shares multiple times per day should not be entitled to claim compensation for all the shares that they purchased at an inflated price because they also resold them at an inflated price. Only shares that were bought at an inflated price and held until the date of a corrective disclosure can be claimed to have suffered economic losses from that price

inflation.[53] Shares bought during a reference period and held as of the last day of that reference period are called retained shares, and represent the shares that would potentially qualify for compensation.

56. In addition, from an economic perspective, shares that were purchased by "subscribers" using purchasing rights issued during the first reference period do not qualify for compensation. As described in Section III, in September 2007, Fortis issued to its existing shareholders the rights to purchase two new shares at a price of €15 per share for every three shares owned. Also, as described in Section IV.A.2, the upper bound estimate of the abnormal return during the first reference period is 3.6%. Applying this percentage drop to the unadjusted price of Fortis stocks on September 25, 2007 (the first day of trading on these rights) of €20.26 indicates that the lower bound on Fortis per share price under the alleged corrective information would have been €19.53,[54] which is above the right's exercise price of €15. Therefore, given that the exercise price is below the price that Fortis stocks would have been after removing any potential price inflation, the subscribers did not incur any potential economic loss and should not qualify for compensation.[55]

57. To provide a clearer exposition, we refer to regular shares that were bought at a potentially inflated price and held until the date of the alleged corrective disclosure as potentially "qualifying shares" or "shares potentially qualifying for compensation."

58. Individual transaction records of all potential claimants are required to quantify the exact number of shares potentially qualifying for compensation from an economic perspective. While such data may be available for a subset of active claimants, the individual transactions records of non-active claimants are typically not available. For this reason, a model is needed to estimate the number of shares potentially qualifying for compensation. In this section, we present estimates of the number of shares potentially qualifying for compensation using a model typically used by

[53] From an economic perspective, holders do not qualify for compensation. See Richard A. Booth, "Class Conflict in Securities Fraud Litigation," *University of Pennsylvania Journal of Business Law*, Vol. 14, No. 3 (2012): 701-774, at 701 ("In a typical securities fraud case, the plaintiff class consists of investors who buy the subject stock at a time when the defendant corporation has negative material information that should be publicly disclosed. When the truth comes out, stock price declines, and those who bought during the fraud period sue the corporation for damages equal to the difference between the price they paid and the price at which the stock finally settles. Only buyers have standing to sue in such circumstances. Mere holders have no claim.").

[54] €20.26 × (1 – 0.036) = €19.53.

[55] An exception to this statement is if an individual bought a purchasing right from existing shareholders to buy Fortis shares. Then this individual could have potentially incurred economic loss. Even if a large portion of the rights were, in fact, purchased from existing shareholders, this would not affect our conclusions about the reasonableness of the settlement.

claimants. Such models are not accurate. We therefore show such results using various sets of inputs only to illustrate why the aggregate volume of trading is not the appropriate measure to use for the calculation of economic losses and why it must be discounted to estimate the potential number of qualifying shares.

1. Two-Trader Model

59. Trading models can be grouped into two broad classes: single- and multi-trader models. A single-trader model or Proportional Trading Model ("PTM") assumes that all traders except market makers have the same propensity to trade and that all shares have the same probability of trading on any date during the reference period.[56] Although the PTM provides the benefit of tractability, the assumption of a single, homogenous trader is restrictive and unrealistic.[57]

60. In response to these shortcomings of the PTM, multi-trader models were developed in an effort to introduce greater flexibility into trading models. The Two-Trader Model ("TTM") belongs in the category of multi-trader models. The TTM assumes that there are two types of agents investing in a stock: "Traders" who tend to trade on average more frequently but initially hold a smaller share of the total public float, and "Investors" who tend to trade on average less frequently but hold the majority of the float.[58] The TTM further assumes that on each trading day in the relevant reference period, the number of shares sold by each type of agent is proportional to their holdings within the Trader/Investor groups. The TTM uses aggregate daily data on floating shares (i.e., shares available for trading) and volumes as inputs to approximate the number of shares that were bought and held (i.e., retained) throughout the relevant reference periods. Further information on the TTM is provided in **Appendix D**.

[56] Linda Allen, "A New Theoretically-Grounded Microstructure Trading Model for Calculating Damages in Shareholder Class Action Litigation?," *Stanford Journal of Law, Business and Finance*, Vol. 12, No. 1 (2006): 61-83 ("Allen (2006)"), at 63.

[57] Allen (2006), at 63-64.

[58] John Finnerty and George Pushner, "An Improved Two-Trader Model for Measuring Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, Vol. 8, No. 2 (2003): 213-263, at 229. *See also*, William A. Bassin, "A Two Trader Population Share Retention Model for Estimating Damages in Shareholder Class Action Litigations," *Stanford Journal of Law, Business, & Finance*, Vol. 6, No. 1 (2000): 49-83.

Table 2

Estimated Number of Retained Shares from Two-Trader Model

Reference Period (1)	Start Date (2)	End Date (3)	Subscriber Shares (Millions) (4)	Regular Shares (Millions) (5)
Scenario 1: Traders Hold 10% of Total Float and 80% of Daily Volume				
First	21-Sep-07	7-Nov-07	765.6	458.3
Second	13-May-08	25-Jun-08	0.0	370.2
Third	29-Sep-08	3-Oct-08	0.0	305.8
Scenario 2: Traders Hold 20% of Total Float and 80% of Daily Volume				
First	21-Sep-07	7-Nov-07	724.2	620.5
Second	13-May-08	25-Jun-08	0.0	505.4
Third	29-Sep-08	3-Oct-08	0.0	381.7
Scenario 3: Traders Hold 10% of Total Float and 60% of Daily Volume				
First	21-Sep-07	7-Nov-07	726.7	662.9
Second	13-May-08	25-Jun-08	0.0	505.9
Third	29-Sep-08	3-Oct-08	0.0	372.4

Sources:
[1] Fortis Financial Statements 2006, 1 March 2007, p. 101.
[2] Fortis Consolidated Quarterly Financial Report for the fourth quarter 2006, 8 March 2007, p. 40.
[3] Fortis Consolidated Interim Financial Statements for the first quarter of 2007, 11 May 2007, p. 15.
[4] Fortis Consolidated Interim Financial Statements for the first half year of 2007, 9 August 2007, p. 17.
[5] Fortis Consolidated Interim Financial Statements for the first nine months of 2007, 8 November 2007, p. 17.
[6] Fortis Consolidated Quarterly Financial Report for the fourth quarter 2007, 7 March 2008, p. 17.
[7] Fortis Financial Statements 2007, 7 March 2008, p. 119.
[8] Fortis Consolidated Interim Financial Statements for the first quarter 2008, 13 May 2008, p. 15.
[9] Fortis Consolidated Interim Financial Statements for the first half-year of 2008, 4 August 2008, p. 16.
[10] Fortis Financial Statements 2008, 31 March 2009, pp. 51, 102.
[11] Fortis, "97.995 per cent acceptance for Fortis 2 for 3 Rights Issue," 11 October 2007, available at http://hugin.info/134212/R/1159252/224528.pdf.
[12] Fortis, "All remaining Fortis New Shares sold as a result of the accelerated private placement of Scrips," 11 October 2007, available at http://hugin.info/134212/R/1159298/224554.pdf.
[13] Fortis, "Fortis completes capital increase," 26 June 2008, available at http://hugin.info/134212/R/1231550/261847.pdf.
[14] Bloomberg L.P.

61. **Table 2** above provides TTM estimates of retained shares for each of the relevant reference period under three different scenarios. The three scenarios vary according to the traders' assumed proportion of float held and of the daily volume traded. Columns (1) to (3) describe the reference periods and their start and end dates. Column (4) shows the estimated number of retained subscriber shares from the TTM. As previously described, subscriber shares were not harmed unless the right was purchased from another investor. They are, therefore, considered separately from regular shares that potentially qualify for compensation from an economic perspective. Column (5) of Table 2 reports the estimates of regular shares that were retained in each reference period that potentially qualify for compensation, after excluding subscription shares, which do not qualify for compensation from an economic perspective from the total number of retained shares. Scenario 1 (i.e., traders hold 10% of total floating shares and 80% of daily volume traded)

provides the lowest estimates of shares qualifying for compensation in each reference period: 458 million shares in the first period; 370 million shares in the second period; and 306 million shares in the third period. Scenario 3 (i.e., traders hold 10% of total floating shares and 60% of daily volume traded) yields the highest estimates of the total number of shares qualifying for compensation across the three reference periods: 663 million shares in the first period; 506 million shares in the second period; and 372 million shares in the third period.[59]

62. Using estimates of the aggregate trading volumes for active claimants provided to us by Ageas,[60] we can divide the estimated total number of qualifying shares into shares bought and held by active and non-active claimants. The number of buyer shares (regular and subscriber) for active claimants obtained from Ageas are shown in column (2) of **Table 3**.

63. We estimate the number of potentially qualifying shares for each claimant group by assuming that the aggregate trading volume estimates provided by Ageas represents the actual number of shares retained for active claimants. Because subscriber shares do not qualify for compensation from an economic perspective, we need to identify the proportion of active claimant retained shares that are regular shares. We assume that the proportion of retained shares that are regular shares for active claimants is the same as that obtained from the TTM model for active and non-active buyers combined.[61] Applying this percentage to the total number of buyer shares for active claimants in column (2), we can estimate the number of potentially qualifying shares for active claimants. The remaining retained regular shares from the TTM in each reference period are assumed to be bought and held by non-active claimants.[62] Based on these assumptions, columns (5) and (6) in Table 3 present estimates of the active and non-active claimants' shares that potentially qualify for compensation under the three different TTM scenarios described above.

[59] Scenario 2 yields the highest estimates of shares qualifying for compensation for the third reference period of 382 million, which is close to the estimate under Scenario 3.

[60] Ageas provided information on active claimant shares. It is our understanding that these numbers are based on information that Ageas received from claimants' organizations.

[61] In other words, column (4) in Table 3 is calculated by dividing column (5) in Table 2 by the sum of columns (4) and (5) in Table 2.

[62] In other words, column (6) in Table 3 is equal to column (3) minus column (5) in Table 3. Table 3, column (3) is equal to Table 2, column (5).

Table 3
Total Number of Shares Potentially Qualifying for Compensation for Active and Non-Active Claimants

Reference Period	Ageas Data on Active Claimant Shares Bought (Regular and Subscriber)[1]	Estimated Qualifying Shares from TTM (Millions)	Qualifying Shares as a % of Total Retained Shares from TTM	Estimates of Potentially Qualifying Shares (Millions)[2]	
				Active	Non-Active
(1)	(2)	(3)	(4)	(5)	(6)
Scenario 1: Traders Hold 10% of Total Float and 80% of Daily Volume					
First	261.0	458.3	37.4%	97.8	360.6
Second	97.3	370.2	100.0%	97.3	272.9
Third	30.8	305.8	100.0%	30.8	275.1
Scenario 2: Traders Hold 20% of Total Float and 80% of Daily Volume					
First	261.0	620.5	46.1%	120.4	500.1
Second	97.3	505.4	100.0%	97.3	408.2
Third	30.8	381.7	100.0%	30.8	350.9
Scenario 3: Traders Hold 10% of Total Float and 60% of Daily Volume					
First	261.0	662.9	47.7%	124.5	538.4
Second	97.3	505.9	100.0%	97.3	408.6
Third	30.8	372.4	100.0%	30.8	341.7

Notes:
[1] Ageas provided information on active claimant shares. It is our understanding that these numbers are based on information that Ageas received from claimants' organizations. The number of shares shown above includes all active claimant shares that were "bought (or subscribed)."
[2] Potentially qualifying share numbers by claimant type are calculated by assuming that the aggregate volume of shares for active claimants provided by Ageas represents the actual number of shares retained by active claimants in each reference period. The number of potentially qualifying shares excludes any subscriber shares. The calculation assumes that the proportion of active claimants' "bought (or subscribed)" shares that are regular shares is equal to the proportion of the regular retained shares of the total retained shares estimated from the TTM. The remaining number of regular retained shares from the TTM is assumed to be the number of potentially qualifying shares for non-active claimants.

Sources:
[1] All sources cited in Table 2.
[2] Information provided by Ageas.

2. Take-up Rate

64. Eligible shareholders can only recover compensation for economic losses if they affirmatively request to collect such payment by submitting a valid claim form. The proportion of eligible claimants who come forth with a valid claim and collect compensation is commonly known as the "take-up rate."[63] Take-up rates can vary widely across different types of settlement agreements as

[63] Mayer Brown LLP, "Do Class Actions Benefit Class Members? An Empirical Analysis of Class Actions," 2013, available at http://bit.ly/1RP52aQ.

they depend on many factors, including case type, level of media attention, value of payments, and the structure of the claims process.[64]

65. There are a limited number of studies and data on take-up rates in the economic literature. Settlement agreements are usually negotiated by counsel and settlement administrators with the court involved at a later stage for approval of the agreement. The process following court approval of a settlement agreement, which includes the collection of claims and estimates of take-up rates, is restricted to public access for reasons such as client privilege or contractual confidentiality. As a result, most studies on take-up rates use data on claims submitted from a single settlement or a limited number of settlements.

66. **Table 4** reports take-up rate estimates from a few studies on securities class action settlements. These studies indicate that take-up rates in securities class action settlements range from about 20 to 35%.[65]

67. Based on her review of take-up rates in historical securities class action settlements, Janowicz (2013) found that a typical securities settlement may have about 20 to 35% of class members filing claims.[66] Other studies report similar or lower take-up rates. First, a report by a court appointed claims administrator in *Jaffe Pension Plan v. Household International, Inc.*, a consumer finance company, indicated that out of 646,719 notice and proof of claims forms sent to potential class members, only 80,112 claims (12.4% of claim forms sent) were received, and of these, only 45,921 claims (7.1% of claim forms sent) were determined to be valid.[67] Second, Fischel, Ross, and Keable (2006) found that in *re WorldCom, Inc. Securities Litigation*, an important securities fraud class action initiated following the collapse of WorldCom, just nearly 21% of class members who were notified of settlement procedures filed proofs of claim.[68]

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[64] Tiffaney Janowicz, "Anticipating Claims Filing Rates in Class Action Settlements," *Class Action Perspectives*, 2013, available at http://bit.ly/1V9Slx3 ("Janowicz (2013)").

[65] Take-up rates in labor and employment settlements can be higher, ranging from about 20 to 85 percent (see Janowicz (2013), p. 2). Take-up rates in consumer class action settlements can vary widely, ranging from 1 to 70 percent (*see* Brian T. Fitzpatrick and Robert C. Gilbert, "An Empirical Look at Compensation in Consumer Class Actions," *NYU Journal of Law & Business,* Vol. 11 No. 4 (2015): 767-792, at 770).

[66] Janowicz (2013), p. 2. The author does not provide a description of the historical data on which she relied. She also noted several factors can increase the claims filing rates such as accurate records of class members, cash benefits, perceived value of filing, and the use of "plain language" in media notice campaigns and claim forms.

[67] Report of Gilardi & Co. LLC Regarding Claims Administration (Doc. #1790) in *Lawrence E. Jaffe Pension Plan v. Household Int'l Inc.*, 22 December 2011, p. 1 and p. 4.

[68] Daniel R. Fischel, David J. Ross, and Michael A. Keable, "The Use of Trading Models to Estimate Aggregate Damages in Securities Fraud Litigation: An Update," *National Legal Center for Public Interest*, Vol. 10, No. 3 (2006): 1-35, p. 15.

Finally, in their first study and its follow-up, Cox and Thomas (2002, 2005) reviewed, respectively, 53 and 118 securities fraud class action settlements filed after the enactment of the Private Securities Litigation Reform Act ("PSLRA") in 1995. Using the proportion of institutional investors who held and traded stocks in the at-issue company during the class period, the authors found average take-up rates ranging from 23 to 33% in the first study and around 28% in the follow-up study.[69] Institutional investors cited a wide range of reasons for failing to submit claims, including issues in notification and recordkeeping processes or low perceived value of submitting claims.

Table 4
Estimates of Take-Up Rates in Securities Fraud Class Actions

Study	Data	Average Take-Up Rates
Janowicz (2013)[1]	Historical data on securities class action settlements; no information on years reported	20% to 35%
Gilardi & Co. LLC (2011)[2]	*Jaffe Pension Plan v. Household Int'l, Inc.;* jury verdict returned on 7 May 2009	7.1%
Fischel, Ross, and Keable (2006)[3]	*re WorldCom, Inc. Securities Litigation*; settlement approved 21 September 2005	21%
James D. Cox and Randall S. Thomas (2005)[4]	Historical data on securities class action settlements filed from 1995-2005	28%
James D. Cox and Randall S. Thomas (2002)[5]	Historical data on securities class action settlements filed from 1995-2002	23.01% to 32.78%

Notes:

[1] Janowicz (2013) does not provide a description of historical settlement data on which she relied.

[2] Gilardi & Co. LLC mailed 646,719 Notice and Proof of Claim forms to potential class members and published summary notice to the published in the USA Today. In response to the dissemination of these claim packages, Gilardi & Co. LLC received 80,112 claims (12.4% of claim packages sent) from potential claims. Of these claims, 45,921 claims (7.1% of claim packages sent) were determined to be valid claims.

[3] Settlement date information can be found at "Worldcom Securities Litigation," available at http://www.worldcomlitigation.com/.

[4] Cox and Thomas (2005) study 118 U.S. securities fraud class action settlements filed after the PSLRA.

[5] Cox and Thomas (2002) study 53 U.S. securities fraud class action settlements filed after the PSLRA.

Sources:

[1] Tiffaney Janowicz, "Anticipating Claims Filing Rates in Class Action Settlements," Class Action Perspectives, 2013, available at http://bit.ly/1VizNvu.

[2] Report of Gilardi & Co. LLC Regarding Claims Administration (Doc. #1790) in *Lawrence E. Jaffe Pension Plan v. Household Int'l Inc.*,22 December 2011, p. 1 and p. 4.

[3] Daniel R. Fischel, David J. Ross, and Michael A. Keable, "The Use of Trading Models to Estimate Aggregate Damages in Securities Fraud Litigation: An Update," *National Legal Center for the Public Interest*, Vol. 10, No. 3 (2006): 1-35, p. 15.

[4] James D. Cox and Randall S. Thomas, "Letting Billions Slip Through Your Fingers: Empirical Evidence and Legal Implications of the Failure of Financial Institutions to Participate in Securities Class Action Settlements," *Stanford Law Review*, Vol. 58, No. 2 (2005): 411-454, p. 424.

[5] James D. Cox and Randall S. Thomas, "Leaving Money on the Table: Do Institutional Investors Fail to File Claims in Securities Class Actions?" *Washington University Law Quarterly*, Vol. 80 (2002):855-881, pp. 876-877.

[69] James D. Cox and Randall S. Thomas, "Leaving Money on the Table: Do Institutional Investors Fail to File Claims in Securities Class Actions?" *Washington University Law Quarterly*, Vol. 80 (2002):855-881, at 876-877; James D. Cox and Randall S. Thomas, "Letting Billions Slip Through Your Fingers: Empirical Evidence and Legal Implications of the Failure of Financial Institutions to Participate in Securities Class Action Settlements," *Stanford Law Review*, Vol. 58, No. 2 (2005): 411-454, at 424.

68. Other studies report a "claimed share rate" as an alternative measure of participation in settlement agreements, which represents the proportion of eligible shares for compensation submitted for claim. To the extent that eligible claimants with the largest number of eligible shares are more likely to file an affirmative claim for payment, the claimed share rate can be higher than the take-up rate. A wide range of claimed share rates, which critically depend on the accuracy of the estimated number of eligible shares, has been reported in studies as illustrated below in **Table 5**.

Table 5
Estimates of Claimed Share Rates in Securities Fraud Class Actions

Study	Data	Average Claimed Share Rate
Fischel, Ross, and Keable (2006)	*In re Clearly Canadian Securities Litigation* filed in 1999[1]	15.5%
Barclay and Torchio (2001)	Securities litigations filed in 1986[2]	30%
Cone and Laurence (1994)	Securities litigations filed in 1992[3]	87%

Notes:
[1] *See In re Clearly Canadian Securities Litigation*, (N.D. Cal., 1999).
[2] *See Levit v. Aweida,* 630 F. Supp. 1072 (D. Colo. 1986). The number of claims for the case reported in Cone and Laurence (1994) were used by Barclay and Torchio (2001) to calculate claimed share rate. Barclay and Torchio (2001) compared the number of shares submitted for claim to the number of shares held by institutions over the class period as reported by 13-F filings. They noted that shares submitted for claims reflect 60% of "buy-and-hold shares originally held by institutions and none of the buy-and-hold shares originally held by individual investors (who owned approximately fifty percent of the total shares outstanding)." See Barclay and Torchio (2001), p. 114.
[3] *See Biben v. Card,* 789 F. Supp. 1001 (W.D. Mo. 1992).

Sources:
[1] Daniel R. Fischel, David J. Ross, and Michael A. Keable, "The Use of Trading Models to Estimate Aggregate Damages in Securities Fraud Litigation: An Update," *National Legal Center for the Public Interest*, March 2006, Vol. 10, No. (3 (2006): 1-35, at 14.
[2] Michael Barclay and Frank C. Torchio, "A Comparison of Trading Models Used for Calculating Aggregate Damages in Securities Litigation," *Law and Contemporary Problems: Complex Litigation at the Millennium*, Vol. 2001, 64, Nos. (2&3 (2001): 105-136, at 114.
[3] Kenneth R. Cone and James E. Laurence, "How Accurate Are Estimates of Aggregate Damages in Securities Fraud Cases?" *Business Lawyer* 49, February (1994), 49: 505-526, at 525, Table 6.

69. Fischel, Ross, and Keable (2006) found that in a 1999 securities litigation involving Clearly Canadian Beverage Corp., claimed shares accounted for only 15.5% of the actual reported trading volume during the class period.[70]

70. In a study on claimed shares in a securities litigation filed in 1986 involving a technology company, Barclay and Torchio (2001) showed that nearly 30% of the estimated buy-and-hold

[70] Fischel, Ross, and Keable (2006), p. 14.

shares predicted by the proportional trading model were submitted for claims.[71] In another study, Cone and Laurence (1994) calculated the claimed share rate in settlement agreements reached in a securities litigation case filed in 1992.[72] They found that about 87% of the eligible buy-and-hold shares predicted by their proportional trading model were submitted for claims when downward adjustments to trading volumes were made.[73]

71. For the current matter, we received information that Ageas received from claimants' organizations on the number of active claimants and their numbers of shares held and purchased during the three reference periods. As far as we know, no systematic record of active claimants' holdings and purchases exist for all the relevant litigations in this matter. However, it is our understanding that these numbers are reasonable for all the parties involved in this Settlement Agreement.

72. Because active claimants have already taken affirmative steps to submit their claims, it is likely that they will have a high take-up rate, possibly close to 100%. However, the take-up rate among non-active claimants would likely be substantially lower, within the lower end of the range reported in literature. Using a take-up rate of 20% for non-active claimants, for example, would correspond to an overall blended take-up rate of 39% when considering both active and non-active claimants together.

V. ASSESSING THE DISTRIBUTION OF THE SETTLEMENT AMOUNT

73. In this section, we assess the reasonableness of the distribution of the settlement compensation outlined in the Settlement Agreement by making two sets of comparisons. First, we focus on the group of claimants that could potentially qualify for compensation from an economic perspective (i.e., buyers of regular shares, but not holders or subscribers) and assess whether the per share compensation amounts in the Settlement Agreement would appropriately compensate them for their potential economic losses. Second, we compare estimates of the potential economic loss for

[71] Michael Barclay and Frank C. Torchio, "A Comparison of Trading Models Used for Calculating Aggregate Damages in Securities Litigation," *Law and Contemporary Problems: Complex Litigation at the Millennium*, Vol. 64, Nos. 2&3 (2001): 105-136 ("Barclay and Torchio (2001)"), at 114.

[72] Kenneth R. Cone and James E. Laurence, "How Accurate Are Estimates of Aggregate Damages in Securities Fraud Cases?," *Business Lawyer* 49 (1994): 505-526 ("Cone and Laurence (1994)").

[73] Cone and Laurence (1994), p. 525, Table 6. The authors' calculation is based on estimated number of eligible shares when NASDAQ trading volume used is adjusted downward by 67% to account for trading activities by intermediaries. Without the volume adjustment, the claimed share rate would be lower.

qualifying shareholders with the estimated settlement compensation that would be available to buyers for different assumed take-up rates among non-active claimants. We also consider the risk of "dilution" for non-active buyers arising from the fact that holders and subscribers both also receive compensation in the Settlement Agreement.

74. As discussed in greater detail in Section VI below, one important point to keep in mind is that settlement compensations are generally a small proportion of measures of potential economic losses. However, as we show below, proposed compensations in the Settlement Agreement are actually quite close to (and in some cases larger than) the estimated potential economic losses in this case. Relative to the measure of economic loss, the settlement amount is therefore proportionally larger than typical settlement amounts reported in the literature for securities litigation that involve potential economic losses of similar scale to the current matter.

75. **Table 6** provides a comparison of the potential per share economic loss with the compensation per share stipulated in the Settlement Agreement. For each reference period, column (2) summarizes the potential price inflation estimates from analyses described in previous sections assuming a response time of 15 minutes: €0.68 per share in the first reference period, €0.65 per share in the second reference period, and a range of €0 to €0.23 per share in the third reference period. As sensitivity checks, we provide potential inflation estimates assuming a longer response time of 30 and 45 minutes in columns (3) and (4). Additionally, columns (5) through (7) show potential inflation estimates with interest compensation considering three response times of 15, 30, and 45 minutes, respectively.

76. Columns (8) shows the per share compensation in the Settlement Agreement in each reference period for buyers in the non-active claimant group.[74] Buyers in the active claimant group receive higher compensation.[75]

77. Even before conducting such a comparison, it is important to note that the potential price inflation estimates shown in Table 6 are upper estimates of potential economic losses for several reasons. First, the potential price inflation estimates implicitly assume that all allegedly defective communications were in fact defective. Second, as previously explained, even if the communications were indeed defective, the price inflation estimates shown in Table 6 do not

[74] *See* Settlement Agreement, Schedule 2, §§ 2.1.

[75] *See* Settlement Agreement, Schedule 2, §§ 3.1. Under the Settlement Agreement, buyers in the active claimant group are compensated at €0.56 per share in the first reference period, €1.28 per share in the second reference period, and €0.38 per share in the third reference period

make additional corrections for other potentially confounding information released at the same time as the alleged corrective disclosures or alleged miscommunications.[76] For these reasons, the potential price inflation estimates presented in **Table 6** should be considered estimates in the upper range of potential per share economic losses for qualifying shareholders in this matter.

Table 6
Comparison of Potential Price Inflation Estimates and Settlement Compensation per Share

Reference Period	Potential Price Inflation without Interest Compensation Based on Response Time of			Potential Price Inflation with Interest Compensation Based on Response time of			Settlement Compensation Per Share for Non-Active Buyers
	15 min	30 min	45 min	15 min	30 min	45 min	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
First	€0.68	€0.91	€0.76	€0.91	€1.23	€1.03	€ 0.38
Second	€0.65	€0.64	€0.95	€0.85	€0.83	€1.24	€ 0.85
Third	€0 - €0.23	€0 - €0.43	€0 - €0.72	€0 - €0.29	€0 - €0.55	€0 - €0.92	€ 0.25

Notes:
[1] Potential inflation estimates with interest compensation are calculated by assuming that the estimated potential price inflation is compounded annually from the day of the alleged disclosure or miscommunication (8 November 2007 in the first reference period; 26 June 2008 in the second reference period; and 3 October 2008 in the third reference period) until 19 May 2016.
[2] Average annual interest rates for each year from the 2007 to 2016 are calculated based on Dutch statutory interest rates.
[3] If the webcast of the press conference on Fortis.com from 9:45-10:38 on 29 September 2008 is considered as a corrective disclosure then the average potential price inflation estimates for the Third Reference Period are €0.03 using a 15-minute window, €0.06 using a 30-minute window, and €0.10 using a 45-minute window.

Sources:
[1] Settlement Agreement, pp. 34-35.
[2] Bloomberg L.P.
[3] RakenPoort.nl.

78. Comparison of the range of potential price inflation estimates in columns (2) through (7) with per share settlement compensation in column (8) indicates that the settlement compensation for non-active buyer are reasonable and often even fall within the range of potential economic loss estimates. The per share settlement compensation for active buyers, which is higher,[77] is therefore by definition even more generous.

[76] For example, as explained in ¶ 42, in the 8 November 2007 press release, Fortis also announced that earnings per share were below expectations. The potential inflation estimates in the first reference period do not make additional corrections for this lower earnings announcement.
[77] *See* Settlement Agreement, Schedule 2, §§ 3.1.

79. Next, based on the potential price inflation estimates (considering a response time of 15 minutes without interest) and the per share settlement compensation amounts, in **Table 7**, we provide estimates of the potential economic loss for qualifying shareholders and the estimated settlement compensation buyers and holders for different TTM scenarios and take-up rates for non-active claimants.[78] Given these settlement estimates, we also assess the risk of "dilution" for non-active buyers.

80. To assess the robustness of the potential economic loss estimates to different take-up rate assumptions and the corresponding risk of dilution, we present estimates under different take-up rates for non-active claimants ranging from 20 to 30 percent.[79] The potential economic loss estimates for non-active claimants in column (2) vary across different take-up rate assumptions and TTM scenarios. As expected, assuming higher rates of claim filings among non-active claimants (both buyers and holders) increases estimates of potential economic loss for qualifying shares that may be filed.

81. The calculations in the first panel of Table 7 rely on the lowest total number of potentially qualifying shares as estimated from the TTM (Scenario 1). The calculations in the second panel rely on the highest total number of potentially qualifying shares as estimated from the TTM (Scenario 3). Estimates of economic loss based on potentially qualifying shares from Scenario 2 of the TTM will lie between the values reported in these two panels.

82. In addition to the reasons enumerated in paragraph 77 that describe why price inflation estimates are in the upper range of potential economic loss per share, Fortis shareholders who were buyers in one reference period could very well have sold shares in subsequent periods at a potentially inflated price. The potential economic loss estimates in Table 7 do not net out any shareholder gains from potentially qualifying shares in one period that were sold in a subsequent reference periods while prices were allegedly also inflated.[80]

[78] For the rest of the analysis, we report numbers associated with the potential price inflation estimates calculated on a 15-minute window, as suggested by the literature.
[79] As noted above, assumptions of 100% take-up rate for active claimants and 20 to 30% take-up rate for non-active claimants yield a blended take-up rate of 39 to 46%, which is higher than the range typically reported in literature.
[80] In other words, the same shareholders that may have potentially experienced "economic loss" in one reference period may have experienced potential "economic gain" associated with the sale of Fortis shares at an inflated price in another period. The potential economic loss estimates in Table 7 do not subtract these potential economic gains from the estimates of economic loss.

Table 7
"Maximum" Potential Economic Loss for Qualifying Shares and Estimated Settlement Compensation for All Eligible Groups

Non-Active Take-Up Rate[1]	Estimated Potential Economic Loss for Non-Active Buyers	Estimated Settlement Compensation (EUR, Millions)[3]				Total Estimated Settlement Compensation (EUR, Millions)		Non-Active Claimant: Remaining Box 2 Amount for Buyers[7] (EUR, Millions)
		Buyers[4]		Holders[5]				
		Active	Non-Active	Active	Non-Active	Active	Non-Active	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
						€795.9	€407.8	
						Box 1[6]	Box 2[6]	
TTM Scenario 1 - Traders Hold 10% of Total Float and 80% of Daily Volume								
20%	€96.9	€282.4	€133.3	€465.5	€185.7	€747.8	€319.1	€222.1
25%	€121.2	€282.4	€166.7	€465.5	€232.2	€747.8	€398.8	€175.6
30%	€145.4	€282.4	€200.0	€465.5	€278.6	€747.8	€478.6	€170.4
TTM Scenario 3: Traders Hold 10% of Total Float and 60% of Daily Volume								
20%	€141.8	€282.4	€172.3	€465.5	€166.0	€747.8	€338.3	€241.8
25%	€177.2	€282.4	€215.4	€465.5	€207.5	€747.8	€422.9	€207.7
30%	€212.6	€282.4	€258.5	€465.5	€249.0	€747.8	€507.5	€207.7

Notes:
[1] 100% of shares eligible for compensation under the settlement agreement among active claimants are assumed to be filed for claim. Eligible shares for compensation under the settlement agreement among non-active claimants are assumed to be filed at the rates specified in column (1), "Non-Active Take-Up Rate."
[2] Estimated potential economic loss for buyers is calculated by multiplying estimates of per share price inflation by the number of qualifying shares in each claimant group that are expected to be filed for claim. The per share price inflation estimates used in the calculation are those from a model assuming a 15-minute response time, as suggested by the literature. Per share price inflation estimate of €0.23 for the third reference period.
[3] Estimated settlement compensation for each eligible share group is calculated by multiplying settlement per share compensation in the Settlement Agreement in each reference period by the number of eligible shares in each claimant group that are expected to be filed for claim.
[4] Buyer settlement compensation is calculated by multiplying both regular and subscribers estimates from the TTM by the per share settlement compensation amount in the Settlement Agreement times the assumed take-up rate for each claimant group.
[5] Number of holder shares for each claimant group is calculated by taking the maximum shares outstanding of Fortis stocks in each reference period and subtracting buyer shares in each claimant group. Counsel provided information on Active claimant holder shares in an E-mail received on April 11, 2016. The remaining number of outstanding shares in each period (i.e., maximum outstanding shares minus buyer shares minus active claimant holder shares) is assumed to be non-active holder shares.
[6] In the Settlement Agreement, Box 1 amount is the maximum settlement cap amount allocated to active claimants, and Box 2 is the maximum settlement amount allocated to non-active claimants.
[7] Remaining Box 2 amount for non-active claimant buyers is calculated as the Box 2 amount minus the estimated settlement compensation for non-active holders in (6) if the total estimated settlement compensation amount in column (8) is less or equal to the Box 2 amount. However, if the total estimated settlement compensation amount in column (8) is greater than the Box 2 amount, then as stipulated in the Settlement Agreement, it is assumed that compensation per Fortis share for all eligible shares will be adjusted downward proportionally such that the total settlement compensation for Non-active claimant group will be equal to the Box 2 amount. The remaining Box 2 amount does not account for any increases in per share compensation due to surplus in the Box 2 amount.

Sources:
[1] Settlement Agreement, pp. 34-36.
[2] Active claimant buyer and holder shares information provided by Ageas.
[3] All sources cited in Tables 2 and 3.

83. Columns (3) and (4) report the estimated settlement compensation for active and non-active claimant buyers, respectively. A comparison of column (2) with column (4) indicates that the estimated settlement compensation for non-active claimant buyers all exceed estimates of

potential economic loss shown in columns (2) across all take-up rates and TTM scenarios even though our settlement compensation estimates ignore a number of additional compensations that eligible buyers will receive under the Settlement Agreement.[81]

84. Under the Settlement Agreement, shares eligible for compensation include holder shares, not only buyer shares.[82] Columns (5) and (6) report settlement compensation estimates for eligible holder shares among active and non-active claimants, respectively.[83] Columns (7) and (8) report the total estimated settlement compensation for all eligible buyer and holder shares in each claimant group: €747.8 million for active claimants and ranging from €319.1 million to €507.5 million for non-active claimants. The sizes of the buyer and total estimated settlement compensation are considerable in light of how settlement amounts typically compare to measures of economic loss. As discussed in Section VI below, settlement amounts are, on average, less than 1 to 2 percent of economic loss estimates in securities litigation that are of similar scale to the current matter.

85. The shaded boxes at the top of column (7) and (8) show "Box 1" and "Box 2" amounts from the Settlement Agreement. "Box 1 Amount" is the aggregate maximum amount of compensation allocated to active claimants (€795.9 million), and "Box 2 Amount" is the aggregate maximum amount of compensation allocated to non-active claimants (€407.8 million) under the terms of the Settlement Agreement.[84] By comparing the Box 1 and Box 2 amounts to the total estimated settlement compensation for active and non-active claimants, we can assess whether the maximum settlement amount allocated to each claimant group would be sufficient to pay all eligible shareholders who may file claims according to the compensation per share proposed in the Settlement Agreement. If not, we can measure by how much the compensations per share will be reduced in practice. This effect is called "dilution" and refers to the fact that per share compensations will decrease if the take-up rate is higher than anticipated. There is also the possibility of an upwards adjustment in per share compensation if the take-up rate is lower than anticipated and the maximum settlement amount allocated to each one or more claimant group is

[81] *See* Settlement Agreement, Schedule 2, §§ 2.2, 3.2, and 3.3. Under the terms of the Settlement Agreement, buyers are compensated not only for their regular buyer shares (i.e., shares qualifying for compensation from an economic perspective) but also for their subscriber shares and for their holder shares (if any).

[82] *See* Settlement Agreement, Schedule 2, §§ 2.1 and 3.1.

[83] Number of holder shares for each claimant group is calculated by taking the maximum shares outstanding of Fortis stocks in each reference period and subtracting buyer shares in each claimant group. Ageas provided information on active claimant holder shares. The remaining number of outstanding shares in each period (i.e., maximum outstanding shares minus buyer shares minus active claimant holder shares) is assumed to be non-active holder shares.

[84] Settlement Agreement, Schedule 2, §§ 2.3, 3.5, 4.1.1, and 4.1.2.

higher than the amount required to pay all eligible shareholders in that claimant group who file for claim.

86. As shown in column (7), the total estimated settlement compensation for active claimants of €747.8 million is lower than the Box 1 amount,[85] which indicates that the Settlement Agreement has allocated sufficient funds to compensate active claimants based on the compensation per share proposed in the Settlement Agreement.

In column (8), the total estimated settlement compensations for non-active claimants range from €319.1 million to €507.5 million across different take-up rate assumptions and TTM scenarios. Under the assumption of a 20% take-up rate for non-active claimants (or a blended take-up rate of 39%), column (8) indicates that the Settlement Agreement has allocated sufficient funds to compensate eligible shares from non-active claimants that may be filed for claim based on the per share compensation proposed in the Settlement Agreement. In this case, the Settlement Agreement stipulates that any surplus remaining in "Box 2 Amount" would be used to adjust per share compensation for all eligible shares upwards by up to 15%.[86]

87. As stress test scenarios, we also consider what would happen with higher take-up rates of 25% and 30% for non-active claimants, which would correspond to high blended rates of 43% and 46%, respectively.[87,88] Given a take-up rate assumption of 25% (in Scenario 3) and 30% (in both Scenario 1 and 3), column (9) indicates that the total estimated settlement compensation for non-active claimant shares would exceed the "Box 2 Amount." In such a case, the Settlement Agreement stipulates that compensation per all eligible shares will be adjusted downward proportionally such that the total settlement compensation for non-active claimant shares filed for claim would be equal to the Box 2 amount.[89]

88. Column (9) shows the estimated amount of settlement compensation that would remain for non-active buyers when non-active holders are compensated after making any necessary downward

[85] Adding the capped additional compensation of €18.7 million[85] and €28.1 million[85] for active claimants outlined in the Settlement Agreement to €747.8 million would yield a total settlement compensation of €794.6 million for active claimants, which is just below the Box 1 amount.
[86] *See* Settlement Agreement, Schedule 2, §4.2.1.
[87] The assumption of 100% take-up rate for active claimants and 25% take-up rate for non-active claimants yields a blended take-up rate of 43%.
[88] The assumption of 100% take-up rate for active claimants and 30% take-up rate for non-active claimants yields a blended take-up rate of 46%.
[89] Settlement Agreement, Schedule 2, § 4.1.3.

adjustment.[90,91] By comparing column (4) with column (9), one can assess the "dilution effect" that the settlement compensation of holders would have on the compensation of eligible buyers. When a take-up rate of 20% is assumed, no downward adjustment to per share compensation is necessary. The remaining "Box 2 Amount" when non-active holders are compensated (column 10) is sufficient to cover the estimated settlement compensation for non-active buyers (column 5) Therefore, there is no dilution effect, and per share compensation for both non-active buyers and holders will be adjusted upwards up to 15%. When a higher take-up rate of 25 or 30% is assumed, we start observing that downward adjustments to per share compensations would be necessary for both non-active claimant buyer and holder shares. However, the remaining compensation for buyers is still large when compared to estimates of the potential economic loss.

89. For example, under TTM Scenario 1, assuming 30% take-up rate for non-active claimants, €170.4 million of the "Box 2 Amount" remains for non-active buyers, although €200.0 million would have been required to compensate them using the compensation per share proposed in the Settlement Agreement. This would lower the compensation per share to 85% (170.4 / 200.0) of its proposed value. However, as shown in columns (2) and (4), a reduction of the compensation per share to 85% of its proposed value would still yield a total settlement compensation that is higher than the estimated potential economic loss. This fact implies that, even in this scenario, the non-active buyer claimants as a group would be compensated by an amount corresponding to the estimated potential economic loss they might have incurred.[92]

90. In TTM Scenario 3, assuming a 30% take-up rate for non-active claimants (or a high blended take-up rate of 46%), the dilution would lower the compensation per share to 80% (207.7 / 258.5) of its proposed value. However, the settlement compensation would still correspond to between 66% (207.7 / 313.0) and 98% (207.7 / 212.6) of the estimated potential economic loss for non-active claimants based on potential price inflation estimates without interest compensation across

[90] As a simple example, suppose the "Box 2 Amount" was €400 million and the estimated settlement compensation for non-active holders is €200 million and for non-active buyers is €300 million. The total estimated settlement compensation for non-active buyers and holders is €500, which is greater than the "Box 2 Amount." Therefore, both non-active buyer and holder per share compensation would be adjusted downward by 20%, such that non-active holders would be allocated €160 million (= €200 million × 80%) and non-active buyers would be allocated €240 million (= €300 million × 80%). Column (10) reports the "Box 2 Amount" of €240 million that would be allocated to non-active buyers.

[91] The amounts shown in column (10) do not account for potential increases in per share compensation due to any surplus remaining in "Box 2 Cap."

[92] As shown in Table 7, the settlement compensation is €170.4 million in this scenario while the estimated potential economic loss for non-active claimants is €145.4 million.

the three response time assumptions presented in Table 6.[93] When taking into account interest compensation, the adjusted settlement compensation would represent between 50% (207.7 / 412.7) and 74% (207.7 / 280.9) of the estimated potential economic loss with interest compensation depending on the response time used.[94] These settlement amounts remain high compared to the values that would be implied by literature estimates of settlement as a proportion of measures of economic loss, as described the next section.

91. Therefore, both active and non-active claimants remain largely compensated even in the presence of a high take-up rate of 30% for non-active claimants (or a blended take-up rate of 46%).

VI. ASSESSING THE REASONABLENESS OF THE SETTLEMENT AGREEMENT

92. In this section, we assess the reasonableness of the settlement agreement by comparing the examining "settlement percent" defined as the settlement amount as a percentage of a measure of economic loss found in the Analysis Group Settlement Agreement Database and in literature.

A. Estimates from Analysis Group Settlement Agreement Database

93. The Analysis Group Settlement Agreement Database ("AG Settlement Database") contains historical settlement data on over 1,400 settlement agreements involving the trading of common stocks in securities litigation matters filed since 1996.[95]

94. The AG Settlement Database shows that, on average, settlement amount is approximately 2.66% of the maximum market capitalization decline ("max market cap decline"),[96] with the median

[93] Estimated potential economic loss is calculated based on the upper bound of potential price inflation estimate for the third reference period presented in Table 6. The lower percentage corresponds to calculations based on estimated potential economic loss estimates using a 45-minute response time. The higher percentage corresponds to calculations based on potential economic loss estimates using a 15-minute response time.

[94] Estimated potential economic loss is calculated based on the upper bound of potential price inflation estimate for the third reference period presented in Table 6. The lower percentage corresponds to calculations based on estimated potential economic loss estimates using a 45-minute response time. The higher percentage corresponds to calculations based on potential economic loss estimates using a 15-minute response time.

[95] The class periods span from 1989 to 2014. SEC analyst suits are excluded. Data are from Institutional Shareholder Securities, "Securities Class Action Services," available at http://bit.ly/1N8XuDg. SCAS is a subsidiary of Institutional Shareholder Services, Inc., a leading provider of, among other solutions on governance and responsible investment, data, analytics and research to hedge funds and asset managers, owners, and service providers.

[96] Max market cap decline is defined as the difference between the maximum market capitalization observed during the class period and the market capitalization one trading day after the end date of the relevant period. To be precise, max market cap decline is calculated as the difference between the maximum market capitalization observed during the class period and the market capitalization one trading day *with available price data* after the end date of the

settlement percent of 1.33%.[97] However, the data also indicate that there is a strong negative correlation between the settlement percent and the size of the max market cap decline; the larger the max market cap decline, the lower the settlement as a proportion of the decline. In class actions with max market cap decline in the fifth quintile of actions in the database (i.e., the lowest 20% in market cap decline or, equivalently, less than $154 million[98]), the mean settlement percent is approximately 6% and the median settlement percent is 3.3%. However, for class actions with max market cap decline in the first quintile to which declines in Fortis stocks belong[99] (i.e., the highest 20% in max market cap decline or, equivalently, greater than $2,650 million), the mean settlement percent is only 1.08% and the median settlement percent is 0.51%.[100]

95. Results from the AG Settlement Database therefore indicate that the size of the settlement compensation in the current matter is large compared to typical settlements in securities class actions.

B. Other Literature-Based Estimates

96. We also reviewed studies quantifying the settlement amount as a proportion of different metrics and found settlement proportions that are generally similar to those observed in the AG Settlement Database.[101] Given the differences in each study's measure of economic loss, it is

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relevant period. Market cap one trading day after the end of the relevant period is used to calculate the decline to account for market overreaction.

[97] Settlement percent ranges from 0.04% (1st percentile) to 22.07% (99th percentile).

[98] The data in the AG Settlement Database are in U.S. Dollars ("USD") and quintiles of max market cap declines are determined in USD terms.

[99] Max market cap decline for Fortis stocks in each reference period is first calculated in USD terms and compared to the distribution of max market cap declines in the AG Settlement Database to identify the relevant quintile. Exchange rates on the day of the max market cap and one trading day after the reference period's end are used to convert the max market cap decline from USD to EUR. The max market cap decline for Fortis stocks is as follows: first reference period ending 7 November 2007: €12,472.0 million; second reference period ending 25 June 2008: €16,092.8 million; third reference period ending 3 October 2008: €10,783.9 million.

[100] To assess the robustness of these settlement percent estimates, we conduct two sensitivity analyses. First, we limit our sample of settlements in the database to only those involving a defendant in the banking sector ("banking sector settlements") to estimate the implied settlement amount in this matter based on settlements in the most comparable sector. Second, we limit our sample to banking sector settlements with settlement dates in the post-Financial Crisis period, or since 2009 ("post-crisis banking sector settlements"). Using these two banking sector settlement samples, respectively, we calculate the mean and median settlement percent in the quintile corresponding to the max market cap decline for Fortis stocks. Limiting the analytical sample to the banking sector has minimal impact on our findings. The mean and median settlement percent for banking sector class actions with max market cap declines in the first quintile are 1.28% and 0.60%, respectively. The mean and median settlement percent among post-crisis settlements with max market cap declines in the first quintile are 0.96% and 0.59%, respectively; in the second quintile, the mean and median settlement percent are 1.42% and 0.64%, respectively.

[101] For example, *see* Cornerstone Research, "Securities Class Action Settlements - 2015 Review and Analysis," 2015, available at http://bit.ly/1Xw3Pt2. In this study, the settlement amount was calculated as a proportion of a "simplified measure" of economic loss that proxies for potential shareholder losses (p. 7). They found that in 2015,

difficult to compare the settlement proportions across them. However, it is clear that the size of the settlement compensation in the current matter is larger than the amounts that would be implied by literature estimates.

VII. CONCLUSION

97. Having analyzed the materials set forth in Appendix B and conducted the various analyses described herein, we conclude that the Settlement Agreement between Ageas and claimants' organizations fairly compensates eligible shareholders for potential economic losses attributable to allegedly defective communications by Fortis. In particular, the compensation amounts in the Settlement Agreement are higher than both average estimates of settlement amounts based on the literature and those obtained from a database of historical settlement data covering over 1,400 settlement agreements involving the trading of common stocks in securities litigation matters filed since 1996.

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settlement amount as a proportion of potential shareholder loss was 1.8% for all settlements and 0.8% for cases with $5 billion in potential shareholder loss (see Figures 7 and 8). Cornerstone Research notes that the estimates of shareholder losses presented in the report "are not intended to be indicative of actual economic damages borne by shareholders" (p. 7). In a similar study conducted by NERA, the settlement amount was calculated as a proportion of the estimated "investor loss," a proxy for the "aggregate amount that investors lost from buying the defendant's stock rather than investing in the broader market during the alleged class period" (*see* NERA, "Recent Trends in Securities Class Action Litigation: 2015 Full-Year Review," 2015, available at http://bit.ly/1SgcPnN, p. 7). NERA found that "settlement ratio," the settlement amount as a percentage of investor loss, has been generally declining over time and is also decreasing with the size of the investor loss. In 2015, the median settlement ratio was 1.6% and for cases with investor loss size greater than $10 billion, the settlement ratio was 0.6% (Figures 29 and 30). NERA notes that "the investor losses variable is not a measure of damages, because any stock that underperforms the S&P 500 would have 'investor losses' over the period of underperformance; rather, it is a rough proxy for the relative size of investors' potential claims" (p. 7). In a third study, Finnerty and Goswami (2006) estimated economic losses for a sample of 525 U.S. federal securities fraud class action settlements using a proportional trading model and the S&P 500 Index to adjust for "market-wide price movements during the class period" (*see* John D. Finnerty and Gautam Goswami, "Determinants of the Settlement Amount in Securities Fraud Class Action Litigation," *Hasting Business Law Journal*, Vol. 2, No. 2 (2006): 453-486, at 459 and 461). They found that the settlement amount as a percentage of estimated damages has also been declining over time. In 2005, settlements were, on average, about 3.5% of estimated damages. When the settlement share was weighted by the estimated damages, settlements were about 1.39% of estimated damages on average (Table 2).

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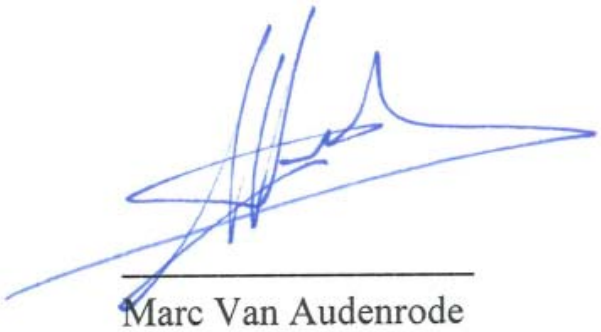

Marc Van Audenrode

APPENDIX A: Curriculum Vitae of Marc Van Audenrode

MARC VAN AUDENRODE, PH.D.
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Dr. Van Audenrode is an expert in class action litigation, damages calculations, antitrust, labour economics, and issues involving policy and strategy. He has a broad range of experience in matters involving data analysis, evaluation of liability claims, assessment of investor and economic losses, pricing strategies, and analysis of various class action issues. His recent work in securities class action litigation includes filing expert reports and providing testimony in disputes involving, for instance, the evaluation of the management, structure and performance of a collateral investment pool, and the assessment of management fees charged to mutual fund investors. He has estimated damages in various contexts, including claims of antitrust violations, product defects, misleading communications, and mismanagement. In the antitrust field, he has helped develop a methodology to evaluate the price of desktop software and ways to evaluate competition in the market for wireless pole attachments. His scientific research has been published in numerous peer-reviewed academic journals. He is a coauthor of the book, *The Mutual Fund Industry: Competition and Investor Welfare*, has written articles for trade journals, and is a frequent presenter at industry and academic conferences.

PROFESSIONAL EXPERIENCE

2007 - present	Managing Principal, Analysis Group (Groupe d'analyse)
2005 - present	Professeur associé, Département d'économique, Université de Sherbrooke, Canada
2003 - 2006	Vice President, Analysis Group (Groupe d'analyse)
1998 - 2005	Professeur titulaire, Département d'économique, Université Laval, Canada
1998 - 2002	Directeur, Département d'économique, Université Laval, Canada
1995 - 1998	Professeur agrégé, Département d'économique, Université Laval, Canada
1991 - 1995	Professeur adjoint, Département des sciences économiques, Université du Québec à Montréal, Canada
1989 - 1991	Research Assistant, Institute of Industrial Relations, University of California, Berkeley
1988 - 1990	Teaching Assistant, Department of Economics, University of California, Berkeley
1986	Economist, Research Department, Banque Nationale de Belgique

1984 - 1985 Teaching Assistant, Département des sciences économiques, Facultés Universitaires Catholiques de Mons, Belgium

EDUCATION

1991 Ph.D. in Economics, University of California, Berkeley
Areas of specialization: Labor, Industrial Relations, Econometrics

1988 M.A. in Economics, University of California, Los Angeles

1984 Licencié et Maître en sciences économiques, Université Catholique de Louvain, Belgique

1983 Candidat en droit, Université Catholique de Louvain, Belgique

LANGUAGES:

French (Native), English (Fluent), Spanish and Dutch (Knowledge)

OTHER PROFESSIONAL ACTIVITIES

Vice-Chair, Economics and Law Committee, Competition Law Section, Canadian Bar Association, 2015 - Present

President, Société canadienne de science économique, 2001–2002

President-elect, Société canadienne de science économique, 2000–2001

Chair, Rae Prize Committee of the Canadian Economic Association, 2000

Member, Board of Directors. Canadian Employment Research Forum, 1997–2003

Member, Board of Directors. Canadian Economics Association, 1997–2000

Research Associate. Canadian International Labour Network, 1996–2002

Undergraduate Advisor, Département d'économique, Université Laval, 1996–1998

Chair, Regular Grants Committee (Economics), Social Sciences and Humanities Research Council of Canada (SSHRC), 1998–1999

Member, Regular Grants Committee (Economics), SSHRC, 1995–1996, 1997–1998

Chercheur régulier, Centre de recherche en économie et finance appliquées, 1996–2002

Professeur invité, Université des Antilles Guyane, Faculté de droit et d'économie, 1996–1997, 1998–1999

Chercheur régulier, Centre interuniversitaire sur le risque, les politiques économiques et l'emploi, Montreal and Québec, 1991–1995

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"Des immigrants en or." With Pierre Fortin and Pierre Emmanuel Paradis. La Presse, September 2007.

"Determinants of Incidence and Duration of Unemployment Spells Among Older Workers." With Pierre Fortin and Jimmy Royer. Report presented to Human Resources and Skills Development Canada, 2007.

"Analyse économique de l'étalement des ajustements salariaux à effectuer pour réaliser l'équité salariale dans le secteur public du Québec." With Pierre Fortin. Report presented to the Commission de l'équité salariale du Québec, October 2006.

"Convention de mise en marché des porcs : une structure plus libre et des prix plus justes pour une industrie plus prospère." With Pierre Fortin. Report presented to the Régie des marchés agricoles et alimentaires du Québec, August 2006.

"L'industrie du sirop d'érable est en détresse." With Pierre Fortin. Les Affaires, April 2006.

"Les entreprises adaptées du Québec : une aubaine économique et sociale pour le Québec, " With Pierre Fortin. Report presented to the Conseil québécois des entreprises adaptées, February 2006.

"Les surplus de sirop d'érable, le contingentement de la production et le dommage causé aux producteurs transformateurs." With Pierre Fortin. Report presented to the Association des érablières-transformateurs des produits de l'érable, September 2005.

"Le conflit de l'OSM : comme celui de la LNH." With Pierre Fortin. Le Devoir, August 27, 2005.

"Employment Insurance in Canada and International Comparisons." With Andrée-Anee Fournier, Nathalie Havet, and Jimmy Royer. Report presented to Human Resources and Skills Development Canada, June 2005.

"Papiers Gaspésia : Il faut remettre aux entrepreneurs floués les 40 millions qu'on leur doit" With Pierre Fortin. Le Devoir. June 22, 2005.

"Plus jamais." With Pierre Fortin. La Presse, May 2005.

"Les dépassements de coûts directs de main d'ouvre sur le chantier de la Gaspésia." With Pierre Fortin and Erick Moyneur. Report presented to the Commission d'enquête sur les dépassements de coûts à la société papiers Gaspésia. February 2005.

"Faire face à la nouvelle réalité du commerce de détail." With Pierre Fortin. Le Devoir, December 13, 2004.

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"Des solutions pour payer la dette." With Pierre Fortin. L'actualité, October 2004.

"Employment Insurance in Canada and International Comparisons." With Jimmy Royer, Andree-Anne Fournier and Nathalie Havet. Report presented to Human Resources and Skills Development Canada, 2004.

"Les cégeps : économiques, performants et équitables." With Pierre Fortin and Nathalie Havet. La Presse, May 2004.

"L'apport des Cégeps à la société québécoise." With Pierre Fortin. Report presented to the Fédération des cégeps du Québec, April 2004.

"Que faire quand on est moins riche, qu'on dépense plus, qu'on est plus taxé, qu'on est plus dépendant, qu'on est plus endetté et qu'on vieillit plus vite que les autres?" With Pierre Fortin. Report presented during the Consultations du ministre des finances du Québec sur le budget 2004–2005, January 2004.

"Le programme des immigrants investisseurs : une solide contribution à l'emploi, régional, à l'industrie financière et aux revenus de l'état" With Pierre Fortin. Report presented to the Commission de la culture de l'Assemblée nationale du Québec, January 2004.

"Haro sur les cégeps." With Pierre Fortin. La Presse, December 2003.

"The Impact of the James Bay Development on the Canadian Economy." With Pierre Fortin. Report presented to the Grand Counsel of the Cree Nation, July 2003.

"Assessing the Extent of Randomization Bias in the Canadian Self-Sufficiency Demonstration Project." With Guy Lacroix and Jimmy Royer. Report presented to Social Research and Demonstration Corporation, 2003.

"Employment, Income Supplement and Mental Health: A Controlled Experiment." With Ronald Kessler, Pierre Crémieux, Paul Greenberg, and Phil Merrigan. Report presented to Social Research and Demonstration Corporation, January 2003.

"Estimation des conséquences économiques d'une réduction de la portée de l'article 45 du Code du travail." With Jimmy Royer and Patrick Lefebvre. Report presented to the Ordre des conseillers en relation de travail du Québec, 2001.

"The Determinants of Search Behaviour." With Pierre Crémieux, Jimmy Royer and Phil Merrigan. Report presented to Social Research and Demonstration Corporation, May 2001.

"Adult Education, Training and Earned Income." With Pierre-Yves Crémieux and Jimmy Royer. Report presented to Human Resources and Skills Development Canada, 2001.

"An Assessment of Various Components of C-12 on the Duration of Unemployment Spells." With Guy Lacroix. Contribution to the program of evaluation of the Canadian employment insurance system. Report presented to Human Resources and Skills Development Canada, 2001.

"The Impact of Workers' Experience Rating on Unemployed Workers." With Pierre Fortin. Contribution to the program of evaluation of the Canadian employment insurance system. Report presented to Human Resources and Skills Development Canada, 2001.

"The Impact of Bill C-17 on Benefit Eligibility, Take Up of Benefits and the Financial Liability of the UI Account" With Paul Storer. Contribution to the program of evaluation of the Canadian unemployment insurance system. Report presented to Human Resources and Skills Development Canada, July 1997.

"The Long-Term Employment Outcomes and Bill C-17." With Paul Storer. Contribution to the program of evaluation of the Canadian unemployment insurance system. Report presented to Human Resources and Skills Development Canada, August 1997.

"The Impact of Unemployment Insurance on Search Intensity, Reservation Wages, Re-employment Probabilities and Post-Displacement Wages." With Paul Storer, Pierre-Yves Cremieux and Pierre Fortin. Contribution to the program of evaluation of the Canadian unemployment insurance system. Report presented to Human Resources and Skills Development Canada, April 1995.

"L'évolution macro-économique et la question budgétaire au Québec." With Pierre Fortin and P.Y. Crémieux. Report presented to the Conseil de la Santé et du bien-être du Québec, September 1994.

"The Productivity of UI Job Search." With Paul Storer, Pierre-Yves Cremieux and Pierre Fortin. Contribution to the program of evaluation of the Canadian unemployment insurance system. Report presented to Employment and Immigration Canada, April 1994.

SELECTED CONSULTING CASEWORK

Tribunal de Commerce de Bruxelles
Patrinvest v Ageas SA/NV.
Wrote a report on allegations of shareholders misinformation.

Tribunal de Commerce de Bruxelles
DRS Belgium SCRL v Ageas SA/NV, Merrill Lynch International PUC, and BNP Paribas Fortis SA.
Wrote a report on allegations of shareholders misinformation.

Quebec Construction Industry Arbitration
Association de la construction du Québec v Syndicats de la construction
Wrote a report and testified in a matter involving pay rates on overtime hours.

Comité de la rémunération des procureurs du Québec
Association des procureurs du Québec v. Secrétariat du conseil du trésor du Québec
Wrote a report and testified in a matter involving salaries of Quebec's prosecutors.

Ontario Energy Board
In re: Application by Toronto Hydro-Electric System Limited for an order pursuant to section 29 of the Ontario Energy Board Act, 1998.
Wrote a report and testified in a matter involving competition in the market for wireless antenna attachments.

Ontario Superior Court
Fairview Donut Inc., et al. v. The TDL Group, Tim Hortons
Supported Prof. Roger Ware in a matter involving alleged price fixing and anticompetitive behavior by Tim Horton's.

United States District Court, Northern District of Ohio
In re: Whirlpool Corp. Front-Loading Washer Products Liability Litigation
Filed an expert report and provided testimony in a dispute involving a consumer class action related to front-loading washing machines.

Supreme Court of the State of New York
Denver Employees Retirement Plan v. JPMorgan Chase Bank N.A.
Filed an expert report and provided expert testimony in a dispute involving the management of a collateral investment pool.

United States District Court, Eastern District of Wisconsin
Edwin L. Reso et al. V. Artisan Partners Limited Partnership
Filed an expert report and provided testimony in a dispute involving fees charged to mutual fund investors.

Queen's Bench for Saskatchewan
Saskatchewan Federation of Labour et al v. Her Majesty the Queen

Filed an expert report on the impact of the changes in Saskatchewan union certification laws on the success of union certification.

Volvo Canada v. Travailleurs Canadiens de l'automobile
Contract dispute arbitration
Filed an expert report and provided testimony before an arbitrator on the nature of the financial crises of 2008.

Québec Commission des lésions professionnelles
Association des pompiers de Montréal v. Service de sécurité incendie de Montréal
Filed an expert report and provided testimony to evaluate a statistical study presented by the Montreal Firefighter Union linking firefighter's safety and the nature of their equipment.

Antitrust Litigation
Advanced Micro Devices, Inc., and AMD International Sales and Service, LTD., v. Intel Corporation and Intel Kabushiki Kaisha
Supported an academic expert in the analysis of claims of anticompetitive behavior including exclusionary conduct and monopolization.

Confidential Intellectual Property Litigation
In response to a patent infringement suit brought by a German patent holding firm, one of the world's leading providers of mobile phone handsets retained Analysis Group to estimate the value of a selected feature of wireless handsets. The work involved conducting an econometric analysis to determine whether and to what extent consumers value the feature at issue.

Manitoba Public Utilities Commission
Natural Gas Competitive Landscape review
Filed an expert report and provided testimony on issues related market structure and competition in the natural gas retail market.

Cour Supérieure du Québec
Lefèvre Frères Limitée et al. C. Procureur general du Québec, 500-17-025960-058
Filed an expert report on issues related to unfair competition practices.

Commission de l'équité salariale du Québec
Filed an expert report and provided testimony on issues related the impact of pay equity on the Government of Quebec's finances.

Axiom Plastics, Inc. v. E.I. DuPont Canada Company
Ontario Superior Court of Justice
Supported an expert in the analysis of class certification issues related to alleged price-fixing.

Régie des marchés agricoles et alimentaires du Québec
Audition dans le cadre du renouvellement de la convention de mise en marché du porc
Filed an expert report and provided testimony on issues related to market structure and incentives in the pork industry.

Goodyear Canada Inc. − Le Syndicat canadien des communications, de l'énergie et du papier − local 143
Filed an expert report and provided testimony in an arbitration proceeding between Goodyear Canada and its union.

Cour Supérieure du Québec
Première Nation de Betsiamites et al. C. Le Procureur Général du Canada et al. (500-17-022878-048)
Filed an expert report on the economic impact of ending logging on the Nation's territory.

Non-Participating Manufacturer (NPM) Adjustment Proceeding Under the Tobacco Master Settlement Agreement Between the Settling States and the Participating Manufacturers
Arbitration Proceeding Before Professor Daniel McFadden and the Brattle Group
On behalf of the Settling States, supported Professors Robert Pindyck and Jonathan Gruber in an analysis of whether the disadvantages of the 1998 Master Settlement Agreement were a "significant factor" contributing to the Market Share Loss of the Participating Manufacturers in 2003.

Commission d'enquête sur la société papiers Gaspésia
Filed an expert report and provided testimony on the sources of low productivity on the construction site.

Assemblée Nationale du Québec
Provided testimony to the immigration committee on the value of the immigrant-investor program.

Régie des marchés agricoles et alimentaires du Québec
Fédération des producteurs bovins du Québec v. Produits de viande Levinoff No. 270-09-04-01
Provided testimony on issues related to market definition.

United States District Court, District of Massachusetts
Northland Cranberries v. Ocean Spray Cooperative
Support Professor Robert Pindyck in a case of alleged monopolization of the market for cranberry juice.

United States Superior Court of the State of California for the City and County of San Francisco
Microsoft I-V Cases, J.C.C.P. No 4106
Support Professor Robert Hall in developing a damage model in a case involving alleged non-competitive practices.

Cour Supérieure du Québec
Conférence des juges du Québec & al. c. Procureur général du Québec No. 500-05-070351-026 et Morton S. Minc & al. c. Procureur général du Québec No. 500-05-070457-021
Filed an expert report and provided testimony on issues related to Quebec Courts Judges' compensation.

U.S. District Court, District of Columbia
Kellogg Company v. BASF AG, et al.
Support Professor Robert Pindyck in developing a damage model in an alleged antitrust violation case.

Canada House of Commons
Provided testimony to the House Committee on Finance regarding employment insurance reform issues.

WORKS IN PROGRESS

Implementing Tervita (Some Difficulties.) With Marissa Ginn and Roger Ware.

"Antitrust Private Damages Actions in the United States, Canada, and the EU." With Marissa Ginn and Pierre Cremieux.

"Potential Competition and the Prices of Network Goods: Desktop Software." With Robert E. Hall and Jimmy Royer.

SELECTED PRESENTATIONS:

"Le dollar, la politique monétaire, et la relance du secteur manufacturier." Presented at the MEQ-FTQ Conference, Montreal, December 2009.

"Les besoins (quasi) illimités des familles." Paper presented at the Conference «Québec, un paradis pour les familles ? » Montreal, November 2008.

"Politiques d'intégration des immigrés au marché du travail au Québec." Paper presented at the ASDEQ Conference, Gatineau, QC, May 2008.

"Efficiencies in Competition Policy." Paper presented to the *Competition Review Panel*, Montreal, February 2008.

"Do Mutual Funds Investors Care about Fees?" Paper presented at the Canadian Economics Association ("CEA") Conference, Halifax, June 2007.

"Les salaires et la productivité au Québec : les 25 prochaines années." Paper presented at the conférence de la Régie des rentes du Québec sur l'avenir du Québec, October 2006.

"L'impact d'un relâchement des règles limitant la sous-traitance." Paper presented at the UQAM Economics Department Seminars, May 2005.

"Potential Competition and the Prices of Network Goods: Desktop Software." Paper presented at the conférence de la société canadienne de sciences économiques, Québec, May 2004.

"Potential Competition and the Prices of Network Goods: Desktop Software." Paper presented at the International Applied Industrial Organization Conference, Chicago, April 2004.

"Évaluation du bien-fondé d'un relâchement des restrictions aux mouvements des travailleurs entre le Canada et les Etats-Unis." Paper presented at the Conference on Social and Labour Market Aspects of North American Linkages, Montreal, December 2002.

"Where Does the Canadian Debt Come From? A Comment." Paper presented at the conference "Is the Debt War Over?" Montreal. November 2002.

"Downward Nominal Wage Rigidities: Evidence from Employer-Employee Data." Paper presented at the IZA Conference on Wage Rigidities, Bonn, November 2002.

"Asymetric Information in the Labor Market." Paper presented at the McGill Economics Department Seminar series, November 2002.

"La monnaie unique Nord-Américaine." Paper presented at the congrès de l'AQUINAQ. Charlevoix, QC, June 2002.

"Conséquences économiques du vieillissement de la population du Québec." Presidential address. 42ème conférence de la société canadienne de sciences économiques, Aylmer, QC, May 2002.

"Downward Nominal Wage Rigidities: Evidence from Employer-Employee Data." Paper presented at the Conference of the Europoean Central Bank on Wage Rigidities, Frankfurt, November 2001.

"Le marché du travail au Québec à l'horizon 2020." Paper presented at the workshop organized by the Régie des rentes du Québec, Québec, December 2000.

"Les enjeux économiques de la démographie." Paper presented at the Colloque Démographie et Famille, organized by the Conseil de la Famille et de l'enfance, Montreal, November 2000.

"Job Protection and Job Losses in Belgium." Paper presented at the 14ème congrès des economistes belges de langue Française, Liège, Belgium, November 2000.

"Unemployment Insurance Take-Up and Reemployment." Paper presented at the third CILN conference, Hamilton, September 2000.

"Limited Liability and Moral Hazard." Paper presented at the eight world conference of the Econometrics Society, Seattle, Washington, August 2000.

"Unemployment Insurance Take-Up and Reemployment." Paper presented at the first world meetings of the Society of Labor Economists, Milan (Italy), June 2000.

"Unemployment Insurance Take-Up and Reemployment." With Jean-François Bertrand and Jean-Yves Duclos. Paper presented at the Journées de Microéconomie appliquée, Québec, June 2000.

"Unemployment Insurance Take-Up and Reemployment." With Jean-François Bertrand and Jean-Yves Duclos. Paper presented at the Canadian Economic Association meetings, Vancouver, June 2000.

"Job Protection laws and Jobs: Evidence from a Natural Experiment." Paper presented at CEREGMIA, Université des Antilles-Guyane, French West Indies, March 2000.

"L'union monétaire nord-américaine." Paper presented at Les petits déjeuners de l'ASDEQ Quebec, March 2000.

"Wage and Asymmetric Information in the Labor Market." Paper presented at the CERF-IRPP conference on Canada in the Information Age, Ottawa, March 2000.

"Worker Displacement in Belgium and Denmark." Paper presented at ECARES, University of Brussels, Belgium, November 1999.

"Evaluation of the Employment Insurance Reform." Paper presented at the Canadian Economic Association meetings, Toronto, June 1999.

"The North-American Monetary Union." Paper presented at the Canadian Economic Association meetings, Toronto, June 1999.

"A Difference of Degree: Unemployment Despite Turnover in the Belgian Labor Market." Paper presented at the conference "Understanding Labor Markets," Venice (Italy), January 1999.

"Compensations Policies and Firm Productivity." Paper presented at the North American Winter Meetings of the Econometric Society, New York, January 1999.

"Job Protection laws and Jobs: Evidence from a Natural Experiment." Paper presented at the second international CILN conference, Hamilton (Ontario), September 1998

"Job Protection laws and Jobs: Evidence from a Natural Experiment." Paper presented at the North American Summer Meetings of the Econometric Society, Montreal, June 1998.

"The Impact of Bill C-17 on Benefit Eligibility, Take Up of Benefits and the Financial Liability of the UI Account." Paper presented at the CERF conference, Ottawa, May 1998.

"Unemployment Insurance Take-Up and Reemployment." With Jean-François Bertrand and Jean-Yves Duclos. Paper presented at the CERF conference, Ottawa, May 1998.

"Wages and Asymmetric information in the Labor Market." Paper presented at the Annual Conference of the Society of Labor Economists, San Francisco, May 1998.

"Compensations Policies and Firm Productivity." Paper presented at the International Conference on Linked Employer Employee Data, Washington DC, May 1998.

"Trade and the Economics of Winners and Losers," Paper presented at the second conference on income and productivity (Commission for Labor Cooperation), Dallas (USA), February 1998.

"The Dynamics of Wages and Employment." Paper presented at the North American Meetings of the Econometric Society, Chicago, January 1998.

"Wages and Asymmetric information in the Labor Market." Paper presented at the European Meeting of the Econometric Society, Toulouse (France), August 1997.

"The Uncertainty of Displacement." Paper presented at the Canadian Economics Association conference, St John (Newfoundland), June 1997.

"Wages and Asymmetric information in the Labor Market." Paper presented at the first CILN conference, Hamilton (Ontario), September 1996.

"Persistence of Firm and Individual Wage Components." Paper presented at the North American Econometric Association Meetings, Iowa City, June 1996.

"Exploring the Links Between Wage Inequality and Unemployment: A Comparison of Canada and the US." Paper presented at the CSLS/CERF conference on the Canada/US Unemployment Rate Gap, Ottawa, February 1996.

"Persistence of Firm and Individual Wage Components." Paper presented at the American Economic Association Meetings, San Francisco, January 1996.

"A Difference of Degree: Unemployment Despite Turnover in the Belgian Labor Market." Presented at the International Workshop on Employment Security and Employment Protection, McMaster University, November 1995.

"Optimal Contract, Imperfect Output Observation and Limited Liability." Paper presented at the World Congress of the Econometric Society, Tokyo, August 1995.

"UI, Recall Biases, Spikes, and the Wake-up Call Theory." Paper presented at the CIRANO Workshop, Montreal, July 1995.

"The Exit and Entry of Firms and Worker Turnover." Paper presented at the Conference on Labor Market Imperfections in Europe, Berlin, June 1995.

"UI, Recall Biases, Spikes, and the Wake-up Call Theory." Paper presented at the congrès de l'association canadienne d'économique, Montreal, June 1995.

"Is The U.S./Canada Unemployment Gap Truly Large? A Labor Flow Analysis." Paper presented at the Congrès de la société canadienne de sciences économiques, Québec, May 1995.

"The Duration of Unemployment and the Persistence of Wages." Paper presented at the Conference on Imperfections in the European Labor Markets, Madrid, February 1995.

"Turnover and Efficiency Wage Theory." Paper presented at the 1994 ADRES conference, Paris, December 1994.

"Unemployment Insurance and Job Search Productivity: Measurement of the Duration-Wage Gain Relationship." Paper presented at the CERF Conference on the Evaluation of Unemployment Insurance, Ottawa, October 1994.

"Cycles in Insured and Uninsured Unemployment." Paper presented at the National Bureau of Economic Research summer meetings, Cambridge, MA, July 1994.

"The Productivity of UI Job Search." Paper presented at the meetings of the Canadian Economic Association, Calgary, June 1994.

"Une vérification empirique des implications de la théorie Insider-Outsider." Paper presented at the Congrès de l'association canadienne de science économique. Ottawa. May 1994.

"A Test of the Insider-Outsider Theory Using Firm Level Data." Paper presented at the XLII International Conference of the Applied Econometric Association. Aix en Provence (France). April 1994.

"Displaced Workers and the U.S. Canada Unemployment Differential." Paper presented at the Meetings of the American Economic Association, Boston, January 1994.

"Optimal Contract, Imperfect Output Observation and Limited Liability." Paper presented at the Congrès de la Société Canadienne et Sciences Économiques, Ottawa, June 1993, and Congrès de l'Association Canadienne et Sciences Économiques, Montreal, May 1993.

"Corporatism Run Amok: Job Stability and Industrial Policy in Belgium and the United States." Paper presented at the 17th Economic Policy Panel, Copenhagen, April 1993.

"Corporatism Run Amok: Job Stability and Industrial Policy in Belgium and the United States." Paper presented at the National Bureau of Economic Research University Conference on Labor Markets in International Perspective, Cambridge, MA, April 1992.

APPENDIX B: Materials Considered

Financial Data

Bloomberg L.P.

Euronext, available at http://euronext.com.

Institutional Shareholder Securities, "Securities Class Action Services," available at http://bit.ly/1N8XuDg.

STOXX, available at http://stoxx.com.

Tick Data Inc., available at http://tickdata.com.

Information from Ageas

Active claimant shares information provided by Ageas.

Articles and Book Chapters

Linda Allen, "A New Theoretically-Grounded Microstructure Trading Model for Calculating Damages in Shareholder Class Action Litigation?," *Stanford Journal of Law, Business and Finance*, Vol. 12, No. 1 (2006): 61-83.

Torben Anderson, Tim Bollerslev, Francis X. Diebold, and Clara Vega, "Micro Effects of Macro Announcements: Real-time Price Discovery in Foreign Exchange," *American Economic Review,* Vol. 93, No. 1 (2003): 38-62.

Michael Barclay and Frank C. Torchio, "A Comparison of Trading Models Used for Calculating Aggregate Damages in Securities Litigation," *Law and Contemporary Problems: Complex Litigation at the Millennium*, Vol. 64, Nos. 2&3 (2001): 105-136.

William A. Bassin, "A Two Trader Population Share Retention Model for Estimating Damages in Shareholder Class Action Litigations," *Stanford Journal of Law, Business, & Finance*, Vol. 6, No. 1 (2000): 49-83.

Richard A. Booth, "Class Conflict in Securities Fraud Litigation," *University of Pennsylvania Journal of Business Law*, Vol. 14, No. 3 (2012): 701-774.

Kenneth R. Cone and James E. Laurence, "How Accurate Are Estimates of Aggregate Damages in Securities Fraud Cases?" *Business Lawye*r 49 (1994): 505-526.

Cornerstone Research, "Securities Class Action Settlements - 2015 Review and Analysis," 2015, available at http://bit.ly/1Xw3Pt2.

James D. Cox and Randall S. Thomas, "Leaving Money on the Table: Do Institutional Investors Fail to File Claims in Securities Class Actions?" *Washington University Law Quarterly*, Vol. 80 (2002): 855-881.

James D. Cox and Randall S. Thomas, "Letting Billions Slip Through Your Fingers: Empirical Evidence and Legal Implications of the Failure of Financial Institutions to Participate in Securities Class Action Settlements," *Stanford Law Review*, Vol. 58 (2005): 411-454.

Nicholas I. Crew, Kevin L. Gold, Marnie A. Moore, "Federal Securities Acts and Areas of Expert Analysis," in *Litigation Services Handbook: The Role of the Financial Expert*, ed. Roman L. Weil, Daniel G. Lentz and David P. Hoffman (Somerset: John Wiley & Sons, 2012).

John D. Finnerty and Gautam Goswami, "Determinants of the Settlement Amount in Securities Fraud Class Action Litigation," *Hasting Business Law Journal*, Vol. 2, No. 2 (2006): 453-486.

John Finnerty and George Pushner, "An Improved Two-Trader Model for Measuring Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, Vol. 8, No. 2 (2003): 213-263.

Daniel R. Fischel, David J. Ross, and Michael A. Keable, "The Use of Trading Models to Estimate Aggregate Damages in Securities Fraud Litigation: An Update," *National Legal Center for Public Interest*, Vol. 10, No. 3 (2006): 1-35.

Brian T. Fitzpatrick and Robert C. Gilbert, "An Empirical Look at Compensation in Consumer Class Actions," *NYU Journal of Law & Business,* Vol. 11, No. 4 (2015): 767-792.

Jason T. Greene and Susan G. Watts, "Price Discovery on the NYSE and the NASDAQ: The Case of Overnight and Daytime News Releases," *Financial Management*, Vol. 25, No. 1 (1995): 19-42.

Refet Gurkaynak and Jonathan Wright, "Identification and Inference Using Event Studies," *The Manchester School*, Supplement (2013): 48-65.

Glenn Henderson, "Problems and Solutions in Conducting Event Studies," *Journal of Risk & Insurance* Vol. 57, No. 2 (1990): 282-306.

Tiffaney Janowicz, "Anticipating Claims Filing Rates in Class Action Settlements," *Class Action Perspectives*, 2013, available at http://bit.ly/1V9Slx3.

David H. Kaye and David A. Freedman, "Reference Guide on Statistics," in *Reference Manual on Scientific Evidence*, ed. Committee on the Development of the Third Edition of the Reference Manual on Scientific Evidence (National Academies Press, 2011).

Sok Tae Kim, Ji-Chai Lin, and Myron B. Slovin, "Market Structure, Informed Trading, and Analysts' Recommendations," *Journal of Financial and Quantitative Analysis*, Vol. 32, No. 4 (1997): 507-524.

S. P. Kothari and Jerold B. Warner, "Econometrics of Event Studies," in *Handbook of Corporate Finance: Empirical Corporate Finance*, ed. B. Espen Eckbo (Amsterdam: Elsevier B.V., 2007).

Charles Lee, James Myers, and Bhaskaran Swaminathan, "What is the Intrinsic Value of the Dow?" *The Journal of Finance*, Vol. 54, No. 5 (1999): 1693-1741.

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Marcia Kramer Mayer, "Best-Fit Estimation of Damaged Volume in Shareholder Class Actions: The Multi-Sector, Multi-Trader Model of Investor Behavior," Working Paper, NERA, 2000.

Mayer Brown LLP, "Do Class Actions Benefit Class Members? An Empirical Analysis of Class Actions," 2013, available at http://bit.ly/1RP52aQ.

Mark L. Mitchell and Jeffrey M. Netter, "The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission," *The Business Lawyer*, Vol. 49, No. 2 (1994): 545-590.

NERA, "Recent Trends in Securities Class Action Litigation: 2015 Full-Year Review," 2015, available at http://bit.ly/1SgcPnN.

NYSE Euronext, "CESR Call for Evidence: Micro-structural issues of the European equity markets, NYSE Euronext responses," 2010.

Other Publicly Available Documents

Financial Statements

Fortis Financial Statements 2006, 1 March 2007.

Fortis Consolidated Quarterly Financial Report for the fourth quarter 2006, 8 March 2007.

Fortis Consolidated Interim Financial Statements for the first quarter of 2007, 11 May 2007.

Fortis Consolidated Interim Financial Statements for the first half year of 2007, 9 August 2007.

Fortis Consolidated Interim Financial Statements for the first nine months of 2007, 8 November 2007.

Fortis Consolidated Quarterly Financial Report for the fourth quarter 2007, 7 March 2008.

Fortis Financial Statements 2007, 7 March 2008.

Fortis Consolidated Interim Financial Statements for the first quarter 2008, 13 May 2008.

Fortis Consolidated Interim Financial Statements for the first half-year of 2008, 4 August 2008.

Fortis Financial Statements 2008, 31 March 2009.

Press Releases

Ageas, "Regulated information – Ageas, Deminor, Stichting FortisEffect, SICAF and VEB reach agreement aiming at settling all Fortis civil legacies," 14 March 2016, available at http://bit.ly/1RzaTX0.

Fortis, "97.995 per cent acceptance of Fortis 2 for 3 Rights Issue," 11 October 2007, available at http://hugin.info/134212/R/1159252/224528.pdf.

Fortis, "All remaining Fortis New Shares sold as a result of the accelerated private placement of Scrips," 11 October 2007, available at http://hugin.info/134212/R/1159298/224554.pdf.

Fortis, "Fortis accelerates the execution of its solvency plan," 26 June 2008, available at http://hugin.info/134212/R/1231205/261677.pdf.

Fortis, "Fortis completes capital increase," 26 June 2008, available at http://hugin.info/134212/R/1231550/261847.pdf.

Fortis, "Fortis nine-month net profit at EUR 3.6 billion, as banking and insurance continued strong commercial performance in summer months," 8 November 2007, available at http://hugin.info/134212/R/1166907/228673.pdf.

Fortis, "Fortis statement on transaction with Government of Netherlands," 3 October 2008, available at http://hugin.info/134212/R/1256877/476130.pdf.

Fortis, "Governments of Belgium, Luxembourg and the Netherlands invest EUR 11.2 billion in Fortis," 29 September 2008, available at http://hugin.info/134212/R/1255002/273465.pdf.

Newspaper Articles

"BNP Paribas to Purchase Fortis's Units in Belgium, Luxembourg," Bloomberg L.P., 6 October 2008, accessed 8 May 2015.

"Netherlands Buys Fortis's Dutch Operations for EU16.8 Billion," Bloomberg L.P., 3 October 2008, accessed 8 May 2015.

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APPENDIX C: Inflation Estimates

1. In this appendix, we provide additional detail on the event study methodology we use.

2. Market models explicitly model the dependence of share prices (or share returns) on all available information, firm-specific and market-wide. General market-wide fluctuations are typically accounted for by using fluctuations in relevant stock market indices ("factors"). At a given time, these indices reflect the performance of the relevant markets. The exact number of indices used and the specific indices chosen can differ across applications. In securities litigation, the common practice is to use market models with one or two factors: one factor reflecting fluctuations in the market across industries and another factor reflecting specific market fluctuations in the relevant industry.[102] This is the approach we use in this analysis.[103]

3. We obtained intraday Fortis share price from the Euronext Amsterdam Exchange. To capture the market-wide and industry-wide movements taking place at the same time, we use intraday data on two STOXX indices: the STOXX Europe 50 and STOXX Europe 600 Banks.[104] The STOXX Europe 50 covers stocks from 18 European countries, including Belgium and the Netherlands.[105] The STOXX Europe 600 Banks Index represents stocks of the largest European financial services companies.[106]

4. The market model used in our analysis can be expressed mathematically as

$$r_t - r_{ft} = \alpha + \beta_1(r_{mt} - r_{ft}) + \beta_2(r_{bt} - r_{ft}) + \varepsilon_t,$$

where

r_t is the Fortis share return at time t;

[102] Nicholas I. Crew, Kevin L. Gold, Marnie A. Moore, "Federal Securities Acts and Areas of Expert Analysis," in *Litigation Services Handbook: The Role of the Financial Expert*, ed. Roman L. Weil, Daniel G. Lentz and David P. Hoffman (Somerset: John Wiley & Sons, 2012), 17.

[103] Sensitivity analyses performed on the second and third period show that none of our main conclusions are affected by the use of a one versus two factor model.

[104] Whenever available, we collected data for Fortis share prices and STOXX index values from Bloomberg. For 2007, the data was not available from Bloomberg. The data on Fortis share prices was therefore obtained from Euronext and the data for the STOXX Europe 50 index was purchased from Tick Data Inc. Tick Data Inc. is a provider of historical intraday stock, futures, options, and forex data. More information is available at: https://www.tickdata.com/. Data for the STOXX Europe 600 Banks was not available from either source for 2007.

[105] The STOXX Europe 50 index represents 50 of the largest and most liquid stocks and covers almost 50% of the free-float market capitalization of the European stock market.

[106] See STOXX, "STOXX Index Methodology Guide (Portfolio Based Indices)," March 2015, available at http://bit.ly/1SauZnJ.

r_{ft} is the risk-free rate, the German 3-Month Bund;[107]

r_{mt} is the return of the market-wide index, STOXX Europe 50;

r_{bt} is the return of the industry-specific index, STOXX Europe 600 Banks; and

ε_t is the firm-specific component of Fortis returns.

5. Parameters α, β_1, and β_2 characterize how fluctuations in the economy normally relate to fluctuations in the Fortis share price returns. They are estimated with intraday data using a statistical technique known as regression analysis.[108] Once the parameters are estimated, the model can be used to predict the abnormal return at a specific time *t* given the observed STOXX indices and risk-free rate. The difference between the observed Fortis return and the predicted Fortis return is the abnormal return – the proxy for the impact of firm-specific information. As is standard in litigation and academic research, we use a significance level of 5% to test the statistical significance of abnormal returns.[109]

[107] Market models rely on risk premium theory and therefore subtract the risk-free rate from stock and index returns before estimation. *See* Glenn Henderson, "Problems and Solutions in Conducting Event Studies," *Journal of Risk & Insurance* Vol. 57, No. 2 (1990): 282-306 at 289-291. The risk-free rate is, in theory, the rate of return of an investment with zero risk. In practice, the return of a bond issued by a government for which the risks of default are considered negligible is used as a proxy for the risk-free rate. We use the German 3-month bund as the risk-free rate, collected from Bloomberg L.P.

[108] We use an estimation window of two weeks preceding each corrective disclosure and communication. The estimation window precedes the event so that the coefficient estimates reflect how the stock "normally" behaves relative to the market. See S. P. Kothari and Jerold B. Warner, "Econometrics of Event Studies," in *Handbook of Corporate Finance: Empirical Corporate Finance*, ed. B. Espen Eckbo, (Amsterdam: Elsevier B.V., 2007), 3-36 at 14. Using a one week window preceding each corrective disclosure did not change any of our conclusions.

[109] For significance levels used in litigation and academic research, see: Mitchell and Netter (1994), p. 564; Crew et al. (2012), p. 10; and David H. Kaye and David A. Freedman, "Reference Guide on Statistics," in *Reference Manual on Scientific Evidence*, ed. Committee on the Development of the Third Edition of the Reference Manual on Scientific Evidence (National Academies Press, 2011), p. 124. In our tables, the significance levels of 5% correspond to $p<0.05$.

APPENDIX D: The Two-Trader Model

1. Trading models can be grouped into two broad classes: single- and multi-trader models. Single-trader models such as the proportional trading model ("PTM") abstract away from heterogeneity in trading behavior across various agents and typically use a proportional decay assumption to arrive to an estimate of the number of shares potentially eligible for compensation. Multi-trader models such as the two-trader model ("TTM") can be considered a refinement over single-trader models in that they allow for heterogeneity in trading intensity across various cohorts of traders.

2. In practice, the relative performance of the PTM and the TTM cannot typically be evaluated, because these models predict the number of shares potentially qualifying for compensation, and not the number of shares for which economic losses were actually claimed. However, there are a few studies comparing actual claims to the predictions of the two types of models. These studies generally find that model predictions typically exceed the number of eligible shares for which economic losses are claimed.[110]

3. TTM models consider two types of agents: "Traders" who tend to trade on average more frequently but initially hold a smaller share of the public float, and "Investors"[111] who tend to trade on average less frequently but hold the majority of total floating shares.[112] We also assume based on findings from the literature that Traders account for 10% of floating shares and 60% of the trading volume (while also presenting results based on different levels).[113] On the day a cohort of shareholders enters a reference period, its holdings are assumed to be the daily adjusted trading

[110] See Cone and Laurence (1994), at 517; Barclay and Torchio (2001), at 113-117; Fischel, Ross, and Keable (2006).

[111] The public float is equal to the firm's shares outstanding less the shares held by insiders of the firm.

[112] John Finnerty and George Pushner, "An Improved Two-Trader Model for Measuring Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, Vol. 8, No. 2 (2003): 213-263, at 229. Also see William A. Bassin, "A Two Trader Population Share Retention Model for Estimating Damages in Shareholder Class Action Litigations," *Stanford Journal of Law, Business, & Finance*, Vol. 6, No. 1 (2000): 49-83.

[113] Cone and Laurence (1994) analyzed the trading history of a single security as a case study and found that the most active 10% of the shareholders accounted for 65% of the trading volume during the time period in question. Beaver, Malernee and Keeley (1997) conducted a similar case study for a different security and found that the most active shareholders held 15.3% of the shares and accounted for 84% of the trading volume. More recent studies that examine multiple securities' trading patterns have come to different conclusions regarding the trader/investor parameters. Bassin (2000) solved for best-fit parameters using data from 7 different securities and found that 30.5% of the float was held by parties responsible for 90% of the trading volume. Mayer (2000) used data from 12 different securities to solve for best-fit parameters and found that 37.1% of the float was held by parties responsible for 83.4% of the trading volume. *See* Cone and Laurence (1994), at 513; Fischel, Ross, and Keable (2006), at 8-9; William M. Bassin, "A Two Trader Population Share Retention Model for Estimating Damages in Shareholder Class Action Litigations," *Stanford Journals of Law, Business & Finance* Vol. 6, No. 1 (2000): 49-83 at 56; Marcia Kramer Mayer, "Best-Fit Estimation of Damaged Volume in Shareholder Class Actions: The Multi-Sector, Multi-Trader Model of Investor Behavior ," Working Paper, NERA, 2000 at 13.

volume.[114] Holdings are allocated between Traders and Investors based on the daily adjusted trading volume. On each subsequent day, each cohort retains a portion of their shares based on a retention rate and sells the rest of the shares to the next cohort. Trader and Investor retention rates are calculated using the following formula:[115]

$$Trader\ Retention\ Rate = \frac{TraderFloat(t) - TraderVolume(t)}{TraderFloat(t-1)}$$

$$Investor\ Retention\ Rate = \frac{InvestorFloat(t) - InvestorVolume(t)}{InvestorFloat(t-1)}$$

4. The TTM uses as inputs aggregate daily data on floating shares[116] and share volume[117] to approximate the retained shares for each trading day during a reference period.

[114] A cohort represents all shareholders that purchase shares on the same trading date. Cohorts are indexed from 0 to *n*, where *n* represents the number of days in the damages period. For example, Cohort 1 represents all shareholders that purchase shares on the first day of the damages period. However, Cohort 0 represents shares held on the day before the first day of the damages period, regardless of when each purchase was made.

[115] The retention rate must be between 0 and 1. However, since Traders represent the majority of the volume and hold a small percentage of the total float, sometimes the Trader retention rate becomes negative. On the other hand, since Investors represent a small portion of the volume but hold a large percentage of the total float, sometimes the Investor float becomes greater than 1. When this occurs, the TTM makes adjustments to the retention rates to ensure that the retention rates are always between 0 and 1. More specifically, the TTM sets Trader volume equal to current Trader holdings when Trader retention rate goes below 0, and increases Investor volume to equal to the change in total float when the Investor retention rate goes above 1.

[116] The estimated float represents the daily number of shares available for trading. The float calculation uses quarterly shares outstanding data and prorates the quarterly data using the daily reported volume. The float is

(a) adjusted for stock offerings or buybacks, which increase or decrease the number of shares available for trading; (b) reduced to account for insider holdings by board members and the CEO, as company insiders are not eligible for damages. Data on Fortis company insiders are available from Fortis 2006-2008 financial statements.

[117] Daily volumes represent the numbers of shares traded each day. Reported daily volume can be obtained from Bloomberg. Reported daily volume is adjusted to account for offerings or buybacks and insider trades. Daily volume is further adjusted to account for stocks that are purchased and sold by intraday traders. Intraday traders, including day traders and high-frequency traders ("HFT"), purchase and sell stocks on the same day and typically do not trade on company statements. According to an article published by NYSE Euronext, "NYSE Euronext estimates that HFT represented around 23% of total transaction value during Q1-2010 on its regulated markets. This is up from 5% in Q1-2007, which can be considered as a reference period before the implementation of MiFID." (NYSE Euronext, "CESR Call for Evidence: Micro-structural issues of the European equity markets, NYSE Euronext responses," 30 April 2010, p. 2). Therefore, reported volume is reduced by 5 percent to adjust for market makers and intraday trading. Adjusted volume is thus calculated using the following formula: Adjusted Volume=Reported Volume * (1-Intraday/Market Maker Activity Factor) + Adjustments for Offerings and Buybacks – Short Cover – Increase in Insider Holdings.