Narrative Disclosure Quality and the Timeliness of Goodwill Impairments

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Abstract

This paper studies the relation between the quality of corporate narrative disclosure and the timeliness of goodwill impairments. We combine five measures of the linguistic content of annual report narratives to generate a proxy for narrative disclosure quality. To measure the timeliness of impairments, we deploy a model that relates observed goodwill impairments to the main determinants of impairments identified by prior literature, focusing especially on current period negative stock returns. We hypothesise and find that the impairments of firms with low-quality narrative disclosures are less timely than the impairments of firms with high-quality disclosures. In addition, using a signalling argument, we hypothesise, and find that the market response to goodwill impairments is more negative for firms with low disclosure quality.

Keywords: Annual report narratives, disclosure quality, goodwill impairments, signalling, timeliness.

JEL Classification: M4; M40

1. Introduction

The issue of how to account for acquired goodwill has presented a significant challenge to accounting standard setters and the preparers of company accounts for many decades. Over the last fifteen years or so, both International Accounting Standards Board (IASB) and Financial Accounting Standards Boards (FASB) have recommended that acquired goodwill be retained on the balance sheet, subject to regular impairment reviews. Critics of this approach, such as Ramanna and Watts (2012), have argued that it leaves too much discretion in the hands of managers who, they argue, face incentives to cover up failed acquisitions. Consequently, so the critics argue, goodwill impairments tend to be untimely. A body of empirical evidence, reviewed in section 3, tends to support this view. In a recent discussion paper, the IASB acknowledges concerns about the lack of timeliness of goodwill impairments (IASB, 2020). Nevertheless, the discussion paper recommends continued use of the impairment review approach to accounting for goodwill, although reinforced by additional disclosure requirements.

This paper presents new evidence relating to the timeliness of goodwill impairments, which considers the interaction between corporate narrative disclosure quality and the timeliness of impairments. We view our evidence as providing a counterbalance to prior evidence that a significant proportion of firms fail to report impairments in a timely fashion. Whilst we accept that prior literature shows that many firms delay impairments, we think it is also important to know if this is generally the case (i.e., this is what almost all firms do) or if there is evidence of a material proportion of firms choosing to issue timely impairments and, if so, what kinds of firms make this choice? Knowledge about the characteristics of firms that issue more timely impairments, could be useful in designing policies to encourage more firms to do the same.

Thus, our first contribution is to examine the relation between the quality of annual report narratives and the timeliness of goodwill impairments. We hypothesise that the impairments of

firms with low-quality disclosure are less timely than the impairments of firms with high-quality disclosure.

To test this hypothesis, we begin by producing a regression model to measure the timeliness of impairments. Under the semi-strong version of the efficient markets hypothesis, current year stock returns provide a proxy for news about the economic value of the firm received by the market during the year. Since goodwill impairments reflect negative news about the value of recorded goodwill, one would expect to observe a relation between negative news about the firm reflected in stock returns and goodwill impairments after controlling for other determinants of goodwill impairments. Thus, we construct a model of the relation between impairments and current period stock returns that a) explicitly distinguishes between positive and negative stock returns; b) controls for the level of opening goodwill, as a potential determinant of impairments; and c) controls for other potential determinants of goodwill impairments documented by prior literature.

Having constructed our regression model, we then construct an overall measure of the quality of narrative disclosure, which we label *PC Factor*. *PC Factor* is derived as the first principal component of word counts of forward-looking keywords, performance keywords, strategic keywords, causal keywords, and the FOG index, which proxies for the readability of the narratives.

Finally, to test the hypothesis that firms with higher quality disclosure issue more timely impairments, we use our regression model to compare the timeliness of impairments for firms in the top and bottom quartiles of *PC Factor*. The results of this test clearly indicate that firms with higher quality narratives exhibit a strong and significant relation between negative returns and the level of goodwill impairments. However, firms in the low disclosure quality group exhibit no significant relation between negative returns and goodwill impairments, consistent with these firms issuing untimely impairments.

Our second contribution is to produce and test a hypothesis relating to the potential signalling value of timely impairments. We argue that, in efficient markets, timely impairments might be interpreted as a signal of higher quality financial reporting. If this is the case, then we should expect the market response to impairments for the high disclosure group to be less negative, and this is what we find.

Taken together, we interpret the results of our tests of our two main hypotheses as being broadly supportive of the proposals in IASB (2020) that envisage the introduction of additional disclosure requirements on firms that provide contextual information relevant for assessing the reliability, or otherwise, of the information provided by the impairment review approach to accounting for goodwill.

The rest of the paper is structured as follows. Section 2 discusses the accounting standards governing accounting for goodwill in the UK for our sample period. Section 3 reviews the research literature on goodwill related to the present paper. Section 4 states our main hypotheses and explains the research design. Section 5 describes the data, the sample selection and discusses the main research findings. Section 6 concludes the study.

2. Accounting standards relating to goodwill impairments in the UK.

Purchased goodwill arises as a consequence of the acquisition (takeover) of one firm by another. Specifically, goodwill on acquisition is the difference between the fair value of the amount paid by the acquirer to acquire the assets and liabilities of the acquired entity and the fair value of the identifiable net assets of the acquired entity on the day the acquisition is agreed. Accounting for goodwill is a material[1] and complex accounting issue that has puzzled

[1] Regarding materiality, the mean value of goodwill as a proportion of total assets is 22.9% for the firm years in our sample. We provide further descriptive evidence relating to the materiality of goodwill impairments in section 5.

accounting standard setters and academics for over a century (see Garcia, Katsuo, and van Mourik (2018).

The debate on accounting for goodwill accounting involves three main conceptual issues: i) whether goodwill on acquisition should be recognised as an asset, ii) whether goodwill should be amortised (and, if so, over what period), and iii) under what conditions should the firm be required to recognise an impairment of goodwill. Garcia, et al. (2018) discuss the history of goodwill accounting in the US, UK, France, and Japan and document how the current US and International accounting standards (the capitalisation of purchased goodwill combined with regular impairment reviews) have emerged as a consensus view.

The UK, where government policy is generally supportive of takeover activity, has experimented with various forms of goodwill accounting. Statement of Standard Accounting Practice (SSAP) 22 (ASC, 1984), which was introduced in 1984, encouraged one particular method (i.e., the immediate write off of goodwill against reserves) but allowed another method (the capitalisation of goodwill followed by amortisation through the profit and loss account). SSAP 22 generated considerable controversy and, as a result of these concerns, the UK Accounting Standards Board issued Financial Reporting Standard (FRS) 10 (ASB, 1997) and FRS 11 (ASB, 1998) in 1998.

FRS 10 "Goodwill and Intangible Assets" requires firms to capitalise goodwill in all circumstances. Where goodwill is assumed to have a limited useful economic life, it must be amortised over the assumed life, which must not exceed 20 years. Where the value of goodwill may have become impaired in subsequent periods, FRS 10 requires it to be written down in the balance sheet to its recoverable amount. FRS 11 "Impairment of Fixed Assets and Goodwill" provides details for the implementation of impairment testing.

UK companies listed on the main London Stock Exchange were required to adopt International Financial Reporting Standards (IFRSs) for financial years beginning on or after January 1st,

2005. However, companies listed on the Alternative Investment Market (AIM) were given an option to delay adoption until financial years starting in 2007.

The key international accounting standards relating to the treatment of goodwill are International Financial Reporting Standard (IFRS) 3 "Business Combinations" (IASB, 2013c), International Accounting Standard (IAS) 36 "Impairment of Assets" (IASB, 2013a), and IAS 38 "Intangible Assets" (IASB, 2013b). These standards require the capitalisation of purchased goodwill followed by annual impairment reviews. For present purposes, a key difference between UK accounting standards and IFRS is that the latter does not allow gradual amortisation of purchased goodwill over an assumed life. Rather, IFRS requires purchased goodwill to be held on the balance sheet subject to an annual impairment test. The rules for carrying out these impairment tests are set out in IAS 36. Under IAS 36, the total purchased goodwill of a company is typically allocated across a set of cash-generating units (CGUs). IAS 36 requires annual impairment tests to be carried out at the CGU (or, if necessary, group of CGUs) level.[2]

The requirement to carry out impairment tests at the CGU level is designed to prevent firms from offsetting the impairment losses of CGUs that are performing badly against improvements in recoverable amounts in other parts of the company. Even when most of the firm is performing well, it is still necessary to recognize impairment losses for any CGUs of the firm that has suffered a material reversal of fortune. When the firm as a whole is performing poorly, then an impairment charge will almost certainly be needed if the poor performance is distributed evenly across CGUs. However, if the CGU of the firm that is performing badly is not the CGUs to which purchased goodwill has been allocated, then no goodwill impairment

[2] IAS 36.12 identifies a number of potential internal and external indicators of the impairment of an asset. With respect to goodwill, the most salient internal indicator is evidence from internal reporting that the economic performance of an asset is, or will be, worse than expected. The four main external indicators are: a significant and unexpected decline in market value; a significant negative change in the technological, market, economic, or legal environment; an increase in the discount rate used to value the future benefits from the asset; and the carrying value of the net assets of the entity is greater than its market capitalisation.

charge will be required. Because of the requirement to relate impairment calculations to CGU performance, goodwill impairment charges are unlikely to be perfectly predictable from measures of performance for the firm as a whole. It is logically possible that a firm for which the average CGU is performing well may still need to take an impairment charge if one or more of the CGUs to which goodwill has been allocated is performing poorly. Similarly, it is logically possible that firms for which the average CGU is performing poorly may not need to take an impairment charge if all the CGUs to which goodwill has been allocated are performing well. We reflect this consideration in our model by including a proxy for the degree of segmentation of the firm as a control variable in our regression model.

In a recent discussion paper (IASB, 2020), the IASB proposes that the board *"should develop proposals to enhance the disclosure objectives and requirements in IFRS 3 to improve the information provided to investors about an acquisition and its subsequent performance" (paragraph IN9(a)).* In addition, section 2.10 of the discussion paper sets out specific proposals for additional disclosures relating to the strategic rationale of mergers and the information used by management to assess the performance of its acquisitions:

"The Board's preliminary view is that it should propose replacing the requirement to disclose the primary reasons for an acquisition with a requirement to disclose:

(a) the strategic rationale for undertaking an acquisition; and

(b) management's objectives for the acquisition at the acquisition date"

and paragraph 2.15 states:

Thus, the Board's preliminary view is that the information a company discloses about an acquisition's subsequent performance should reflect the information and metrics the company's management uses to monitor and measure the acquisition's progress against the objectives of the acquisition. This approach is analogous to the management approach used

for segment reporting in IFRS 8 "Operating Segments". A company would be required to disclose the information management is using to monitor whether an acquisition is meeting its objectives.

For reasons given in later sections, we believe the results of this paper can be interpreted as being broadly supportive of the approach of the IASB as set out in the discussion paper. This contrasts with recent literature that has questioned the current standard on the grounds that it allows firms too much discretion over the timing of impairments.

3. Literature Review

There is substantial literature concerned with impairment charges in general and goodwill impairments in particular. We provide an overview of this literature in sub-sections 3.1 to 3.4. Section 3.5 contains a mini-survey of the empirical literature on narrative disclosures that highlights the prior research that is most relevant for the current study.

3.1. Enforcement and Implementation issues

Several papers examine practical and technical issues involved in the implementation of accounting standards relating to goodwill impairments (e.g., Beatty & Weber, 2006; Comiskey, Carlin, & Mulford, 2010; Duh, Lee, & Lin, 2009; Lapointe-Antunes, Cormier, & Magnan, 2009; Sevin & Schroeder, 2005).

For present purposes, Glaum, Schmidt, Street, and Vogel (2013) is particularly relevant. They examine the willingness of European listed companies to comply with the disclosure requirements required by IFRS 3 and IAS 36 in the first fiscal year of IFRS EU-wide implementation (i.e., 2005). They find that the level of compliance depends on a range of company-specific and country-specific factors. At the country level, they find that both the quality of the enforcement regime and the size of the stock market load significantly positive.

In both respects, the UK scores as high quality relative to other countries in the sample. Thus, since the current study is based on UK data, it is important to be aware that, relative to other EU countries, the UK is a relatively high-quality regime. At the company level, Glaum, et al. (2013) find that opening goodwill relative to total assets is a significant determinant of current year goodwill impairments, which helps to justify the inclusion of this variable in our model of goodwill impairment timeliness.

3.2. The value relevance of goodwill

The present paper does not study the market valuation of goodwill or goodwill impairments. Nevertheless, it is important to know if goodwill or goodwill impairments are value relevant. If neither goodwill nor goodwill impairments were value relevant, then this would seriously undermine the relevance of the present study. Fortunately, however, this is not the case.

A number of US studies examine the value relevance of goodwill. Clinch (1995) surveys the early US literature that finds goodwill is value relevant. Chauvin and Hirschey (1994), McCarthy and Schneider (1995), and Jennings, Robinson, Thompson, and Duvall (1996) find that goodwill is priced as an asset by investors. Lee (2011) finds that the ability of goodwill to predict future cash flows has improved since the FASB adopted Statement of Financial Accounting Standards (SFAS) 142 (FASB, 2011). Henning, Lewis, and Shaw (2000) find that investors value the different components of goodwill differently. For Australian companies, Bugeja and Gallery (2006) find that recently acquired goodwill is value relevant, but older goodwill is not.

Several US studies confirm the value relevance of goodwill impairments. These include Chen, Kohlbeck, and Warfield (2008), Jarva (2009), Chambers (2007), and Bostwick, Krieger, and Lambert (2015).

For Australian companies, Chalmers, Godfrey, and Webster (2011) complement Chambers (2007) by investigating whether the goodwill impairment regime under IFRS better reflects the firms' underlying economic value than the goodwill amortisation regime under the Australian GAAP. They find that impairments are better in capturing the investment opportunities and economic performance of goodwill than amortisation charges.

3.3 The determinants of goodwill impairments and their timeliness

For the purposes of the current paper, the literature on the predictability, determinants, and timeliness of goodwill impairments is particularly relevant.

Hayn and Hughes (2006) study the predictability of the goodwill impairments of US firms during the period 1988 to 1998. They find that investors face considerable difficulty in predicting goodwill impairments. They also find a tendency for many goodwill impairments to be taken only after considerable delay. Ahmed and Guler (2007) examine the relationship between goodwill impairments and stock returns pre- and post-SFAS 142. They find that goodwill impairments are more strongly associated with stock returns in the post-SFAS 142 period relative to the pre-SFAS 142 period, consistent with impairments being timelier in the later period.

K. K. Li and Sloan (2017) examine the predictability of impairments pre- and post-SFAS 142. They construct two variables that capture market and financial indicators of goodwill impairment. Using these two indicator variables as potential predictors, they find that impairments are significantly more predictable post-SFAS 142 than pre-SFAS 142. In addition, they find that post-SFAS 142, the financial indicator of goodwill impairment contains information that helps to predict future stock returns, suggesting that impairments were timelier after SFAS 142.

Many papers study the determinants of goodwill impairments by US firms following SFAS 142 for financial years after SFAS 142 implementation. Swanson, Singer, and Downs (2013) model the probability of a firm taking an impairment charge. They find that firms with a relatively high proportion of opening goodwill are more likely to take an impairment. In addition, they show that firms cross-listed on US exchanges are more likely to take impairments than US firms. Masters-Stout, Costigan, and Lovata (2008) study the association between the level of goodwill impairments and CEO turnover. They find clear evidence that new CEOs take greater impairments than CEOs with longer service. In their model, the level of opening goodwill also figures as an independent variable that turns out to be highly significant in their main regression. Ramanna and Watts (2012) study a sample of firms for which there is an indication that their goodwill may have been impaired. They find that only 31% of this sample takes an impairment. They consider two possible explanations for this result. First, that managers had positive inside information about future cash flows. Second, that impairments may have been avoided for opportunistic reasons related to CEO compensation, CEO reputation, and debt-covenant violation concerns. They find no evidence in favour of the first explanation and some evidence in favour of the latter. They also find some evidence that the non-impairments in their sample may be explained by the flexibility of interpretation afforded to managers under SFAS 142.

In addition to results for US companies, a number of papers have studied impairments for non-US samples. Giner and Pardo (2015) study the determinants of goodwill impairment reporting in Spanish listed companies. They provide evidence that managers exercise discretion in the reporting of goodwill impairment losses. They also find that both big bath and smoothing strategies influence managers' decisions to impair goodwill (or not). They also find a significant positive association between opening goodwill and the willingness to take an impairment. Filip, Jeanjean, and Paugam (2015) investigate whether postponing the

recognition of asset impairments is positively associated with discretionary cash flows, and examine the related impact on future performance. They report that firms tend to manipulate discretionary cash flows in order to postpone goodwill impairment losses, which also has a substantial negative impact on future performance. André, Filip, and Paugam (2016) examine the patterns of goodwill impairments in both Europe and the US over the period 2006 (following the implementation of IFRS in the EU) to 2015. Following an approach similar to K. K. Li and Sloan (2017), they use three indicator variables to identify firms potentially carrying economically impaired goodwill. They conclude, for all three measures, and for both the US and Europe, that the frequency of impairments is small relative to the number of firms exhibiting potential economic impairments. Their results also suggest that European firms are less willing to make large impairments compared to their US counterparts. They note that this latter difference could be due to either greater conditional conservatism or a greater willingness to engage in big bath accounting by US firms, but their research design is unable to distinguish between these alternative explanations.

AbuGhazaleh, Al-Hares, and Roberts (2011) study the level of goodwill impairments in the UK following the adoption of IFRS 3. They find an association between CEO changes and goodwill impairments. They also find that the amount of impairment is positively associated with proxies for the quality of corporate governance. Their study uses data from 2005 and 2006, but the authors choose their sample using the largest 500 firms listed in the Financial Times on March 30th, 2007. Firms that died or were taken over in 2005 or 2006 are excluded from the sample. These restrictions limit the generalisability of their findings. In contrast to most studies of the determinants of impairments, AbuGhazaleh, et al. (2011) find that opening goodwill to total assets is not a significant determinant of impairments. Alongside its more substantive contributions, the present paper re-examines this finding on a larger UK sample.

Finally, Glaum, Landsman, and Wyrwa (2018) examine the goodwill impairment decision for firms using IFRS in an international sample of 21 countries. They focus on the extent to which the timeliness of goodwill impairments is associated with current and lagged stock returns, the quality of accounting and auditing enforcement at the country level, and proxies for managerial incentives. Focusing on stock returns, they find a strong (weak) negative relation between current returns and the impairment dummy for high (low) enforcement countries. They also find a weak negative relation between current returns and the impairment dummy for high enforcement countries, consistent with impairments being less timely in low enforcement countries. However, firms in low enforcement countries with high institutional investors exhibit the same responses to current and lagged returns as the firms in high enforcement countries, suggesting that institutional ownership influences timeliness, but only in low enforcement countries. With respect to opening goodwill to total assets, they find that this variable is positive and significant in their main regressions, except for financial firms in high enforcement countries, and for firms with high institutional ownership in high enforcement countries. With respect to managerial incentives, they find that the presence of a new CEO tends to increase the probability of impairment in all country types. For low enforcement regimes only, they find that goodwill impairments are more likely when the variable proportion of CEO's income is higher. This finding, the authors argue, indicates the presence of contract gaming through impairment timing in these regimes. Finally, their results indicate that, in all country types, the timing of impairment is driven to some extent by incentives to smooth reported income. Impairments are more likely in years when income before goodwill impairment is high relative to the trend.

In summary, there is a large body of evidence indicating that the goodwill impairments are associated with company-level measures of the current year reported financial performance and stock returns. In addition, several papers find that impairments are also associated with

lagged stock returns, consistent with impairments lacking timeliness, at least for a proportion of the firms in the samples studied. The studies of André, et al. (2016), Filip, et al. (2015), Giner and Pardo (2015), Glaum, et al. (2018), K. K. Li and Sloan (2017), and Ramanna and Watts (2012), support the hypothesis that the impairments of a material proportion of the sampled firms lack timeliness. Several studies find that, ceteris paribus, firms with higher levels of opening goodwill are more likely to take an impairment in the current year. In addition, firms appointing a new CEO during the year are more likely to take an impairment.

A general conclusion that emerges from the empirical literature on the timeliness of goodwill impairments, is that firms exercise a considerable degree of discretion over the timing of their impairments. The booking of (un)timely impairments is a matter of firm choice. This, in turn, leads to the possibility that firms could differ in the ways that they exercise this choice. In particular, it is possible that firms who are more concerned about their reputation for reporting quality may be more willing to book timely impairments.

A number of prior studies have examined the links between disclosure quality and specific aspects of accounting choice. Lobo and Zhou (2001) find that the Association for Investment Management and Research's rankings of corporate disclosure are inversely related to the level of accruals-based earnings management. Companies with higher rankings for disclosure tend to manage earnings less. More recently, Cassell, Myers, and Seidel (2015) find an inverse relation between disclosure transparency about activity in valuation allowance and reserve accounts and accruals-based earnings management.

The present study examines the timeliness of goodwill impairments using a model of the relation between impairments and stock returns as a basis for assessing timeliness. We use this model to show that firms with higher levels of narrative disclosure issue more timely impairments than firms with low levels of narrative disclosure.

3.4 The market reaction to goodwill impairments

With respect to the market reaction to goodwill impairments, an early paper is Hirschey and Richardson (2002), who study abnormal stock returns around 80 goodwill-write-off announcements made during the five-year period 1992 to 1996. They find a mean negative announcement response of around 2-3% of market value. They also study abnormal stock returns for the year prior to the announcement and find a significantly negative mean cumulative abnormal return.

Subsequent US research on the market reaction to goodwill impairments is dominated by work on the implementation of SFAS 142 in 2002. Segal (2003) studies the market response to goodwill write-downs under SFAS 121 and SFAS 142, taking care to distinguish between the expected and unexpected components of goodwill write-downs. He finds that goodwill write-down announcements generate significant negative stock returns and that the market negatively reacts to the unexpected portion of the goodwill impairment charge but does not react to the expected portion of the goodwill impairment charge. Bens, Heltzer, and Segal (2011) find that goodwill write-offs generate negative stock returns for large firms and for firms with high information asymmetry. Z. Li, Shroff, Venkataraman, and Zhang (2011) study the stock market reaction to goodwill impairments announced during the two-year period in 2002 and 2003, following the implementation of SFAS 142. They find that the market responds negatively to impairment announcements. Zang (2008) studies the market response to the initial impairment losses reported on first time implementation of SFAS 142. He finds that the market responds negatively to the unanticipated portion of goodwill impairment charges. Finally, Cheng, Peterson, and Sherrill (2015) examine the post-SFAS 142 era and find that the stock market reacts negatively to goodwill impairments in the short-run and positively in the long-run.

Whilst most of the research on the market reaction and value relevance of goodwill impairments to date has been based on the US experience, there is some research for non-US

firms. K. Li, Amel-Zadeh, and Meeks (2010) study the value relevance of goodwill impairments and the market response to impairment announcements following the introduction of FRS 11 in the UK in 1998. They find that goodwill impairments are associated with economically significant reductions in market value. They also find a significant negative market reaction to goodwill impairment announcements and report that the negative impact is greater for firms with higher amounts of opening goodwill. Using a sample of US and European firms, Knauer and Wöhrmann (2016) study the market reaction to goodwill impairments. They find that investors react negatively to the announcement of unexpected goodwill write-offs. They also find that investors react more negatively in countries that feature low legal protection and allow more management discretion.

In the present paper, we also examine the market response to goodwill impairments. We argue that, in general, the market response will be driven by two logically distinct considerations. First by the negative news contained in the impairment itself, and second by the market's assessment of the timeliness of the impairment. The novel feature of this paper is we argue that firms making more timely impairments will be rewarded by a less negative market response.

A recent theoretical paper by Corona and Randhawa (2018) argues that firms can establish a reputation by admitting mistakes to build a reputation. They cite timely goodwill impairments as an accounting choice that some firms might make to build reputational capital. The ideas in this paper are consistent with our second hypothesis, in which we argue that the market response to the impairments of high disclosure quality firms should be less negative than the response to the impairments of low disclosure quality firms.

3.5 Empirical Research on Financial Narratives

There is a large, and growing, literature on the computer-based analysis of financial narratives. Useful surveys of this literature include F. Li (2010b), Kearney and Liu (2014), Loughran and McDonald (2016), and El-Haj, Alves, Rayson, Walker, and Young (2019). Significant linguistic themes in this literature include:

i) the determinants and effects of the tone of financial narratives; for examples, see Huang, Teoh, and Zhang (2014), and Henry and Leone (2016).

ii) the determinants and effects of the readability and complexity of financial narratives. Lawrence (2013) finds that less sophisticated investors benefit from clear and concise reports. Individual investors tend to invest more in firms with clear and concise reports, and to earn higher returns from their investments in firms with clear and concise reports. In another important contribution, Bonsall and Miller (2017) examine the effects of 10K narrative disclosures on credit ratings and the cost of corporate debt. They find that less readable 10K narratives are associated with a less favourable bond rating, greater disagreement between rating agencies over the bond rating, and greater credit spreads. Finally, Hasan (2020) finds a strong positive relation between managerial ability and the readability of 10Ks.

iii) comparing the text-similarity of related documents; for example, Brown and Tucker (2011) examine the text-similarly of successive 10K MD&As.

iv) topic analysis using Latent Dirichlet Allocation (LDA); for example, Dyer, Lang, and Stice-Lawrence (2017) use LDA to infer and classify the main topics discussed in US 10K reports over the period 1996-2013.

v) Support vector regression. Frankel, Jennings, and Lee (2016) find that MD&A narratives provide significantly explanatory value for accruals and help to identify accruals that are more persistent.

In this paper, we focus on analysing the effects of UK annual report narratives on the timeliness of goodwill impairments. The view underlying this paper is that financial narratives provide

potentially useful information and explanation about the firm's strategy and future financial performance.[3] Such information serves an important monitoring role, allowing investors and financial analysts to benchmark reported performance against management's expectations. Firms that provide more information about their strategy and business model or future financial performance, and firms that provide narratives relating to their financial performance that are more readable, or contain more explanation about firm performance, make it easier for investors to figure out what parts of the firm's business assets are performing well, and what parts or not doing well. This, in turn, improves the ability of investors to forecast future financial performance. In the light of the findings of the prior literature cited above. that investors benefit from more readable reports, we include a measure of readability in our measure of disclosure quality. We also include measures of strategic content, performance commentary, forward-looking content, and causal explanations in the light of the prior literature.

With regards to strategic narratives, an important determinant of the ability of firms to generate sustainable abnormal profits is the level of competition in the industry. F. Li, Lundholm, and Minnis (2013) examine the extent to which 10K filings provide useful information about the firm's competitive position. They find that their measure of competitive language content predicts future rates of diminishing marginal rates of accounting returns for both assets in place and current investments. Baginski, Bozzolan, Marra, and Mazzola (2017) find evidence of a price reaction and an increase in the accuracy of analysts' earnings forecasts following strategic plan presentations by Italian firms. They also find that their results are driven by narrative

[3] A related area of research, where increasing use is being made of data on narrative disclosures, is the relation between voluntary disclosure and the cost of capital. Recent contributions to this literature are He, Plumlee, and Wen (2019) and Athanasakou, Eugster, Schleicher, and Walker (2020).

disclosures about company strategy and action plans. In the UK policy domain, the Accounting Standards Board, and subsequently, the Financial Reporting council have paid particular attention to encouraging firms to improve their strategic disclosures. Major developments were the publication of Reporting Statement 1 in 2006 (ASB, 2006), which encouraged UK listed firms to include an Operating and Financial Review within the annual report, and the 2010 revision of the UK Corporate Governance Code (FRC, 2018), which recommended the explicit discussion of the company's strategy and business model in the annual report. In 2013, an amendment to UK company law mandated strategic reporting for UK listed firms.

With regards to forward-looking narratives, Hussainey, Schleicher, and Walker (2003) find that firms with annual reports containing more forward-looking statements exhibit a higher level of share price anticipation of earnings. In a refinement of Hussainey, et al. (2003), Schleicher, Hussainey, and Walker (2007) find that the relation between share price anticipation and forward-looking content is only significant for firms reporting losses in the current year. Bozzolan, Trombetta, and Beretta (2009) provide further support for the idea that forward-looking corporate disclosures provide information that is useful for predicting future earnings.

With regards to the use of explanatory language, Zhang and Aerts (2015) use computer-intensive methods to identify the use of causal language in 10-K filings. Their results indicate that the 10Ks published in firm years when the firm fails to meet a key earnings threshold tend to contain more causal language. Moreover, firms issuing more causal explanations tend to experience less volatile stock price movements after the release of the 10-K. The authors argue that their results, on balance, are supportive of the idea that casual statements are informative rather than self-serving.

4. Empirical Hypotheses and Research Design

4.1. Main hypotheses

Prior research has tended to focus on the behaviour of the average firm regarding goodwill impairment decisions. This research finds clear evidence that goodwill impairments tend to be delayed. In contrast to examining average effects, the present study focuses on identifying the causes behind differences in the willingness of firms to book timely impairments focusing on the relation between disclosure quality and impairment timeliness.

Our first hypothesis predicts that firms with high-quality disclosure are more likely to book timely impairments. This hypothesis is closely related to prior studies that examine the beneficial effect of high-quality disclosures on accounting choice including, Lobo and Zhou (2001), Cassell, et al. (2015) and Frankel, et al. (2016). Impairment recognition is also an accounting choice. Furthermore, it is a choice that, arguably, senior management will be particularly concerned to manage. Senior management is responsible for merger decisions, and recognition of impairments reflects directly on the wisdom or otherwise of their choices.

In our view, there are two complementary reasons to expect firms with higher levels of disclosure quality to issue more timely impairments. First, and most importantly, higher levels of disclosure are likely to improve the ability of investors to identify disappointing performance outcomes, thereby enabling them to ask informed questions about why impairments have not been booked[4]. The components of *PC Factor* have been chosen to reflect this monitoring role of financial disclosures. Disclosures about strategy and business model increase the ability of investors to question the strategy of the firm and the goodness of fit of current and past acquisitions with the current strategy. Moreover, changes in strategic language alert investors to changes in strategy. Forward-looking information provides commitments by managers to future performance, which can be used by investors to hold them to account. Disclosures

[4] In a private discussion with a senior member of staff at the UK Financial Reporting Council, they indicated that a key driver behind the FRC's moves to encourage increased narrative disclosures is the belief that improvements in corporate financial disclosure serve to constrain inappropriate accounting choices.

involving performance and causal statements allow investors to develop a better understanding of the relations between management decisions and performance outcomes. Finally, improved readability reinforces the ability of investors to understand the cause and effect relations involved between firm choices and performance outcomes. Firms that are committed to high levels of *PC Factor* run the risk that investors will find it easier to monitor and detect acquisitions that are not performing to expectations. We predict that firms with higher values of *PC Factor* will be more willing to book timely impairments rather than face difficult and well-informed questioning from investors and analysts.

Second, firms that behave opportunistically in their accounting choices (such as a failure to book timely impairments) are also likely to be less transparent in their disclosure choices. Thus, our first hypothesis is:

H1: The impairments of low disclosure quality firms are less timely than the impairments of high disclosure quality firms.

Our next hypothesis is complementary to the first and can be viewed as a kind of *dual* to the first hypothesis. This second hypothesis considers the possibility that the market reaction to an impairment might be driven by two considerations. First, as considered by prior literature, the market response is driven by the fact that the firm has announced an impairment. Second, and new to this paper, the market response may be driven by the market's view as to whether the impairment was timely. This latter effect could arise if the market interprets timely impairments as a signal of higher quality financial reporting. Corona and Randhawa (2018) provide an analytical model in which firms are able to establish a reputation for higher quality reporting by admitting to mistakes. They identify the booking of timely impairments as one way that firms might signal their quality.

For our purposes, we require three assumptions to be satisfied in order for this signalling hypothesis to hold. First, the market must contain a material proportion of investors who are aware that some firms are more willing to take an impairment than others and who are able to distinguish, perhaps with error, timely from untimely impairments. Second, the proportion of investors who can distinguish timely from untimely impairments is large enough to affect share prices, recalling that in an efficient market, it is the marginal investors who move prices, not the average investor.

Third, the managers of companies are aware that the first two assumptions are true.

Given these conditions, high-quality firms will have an incentive to signal the greater credibility of their financial statements by issuing timely impairments. Therefore, the market reaction to impairments will consist of two components. First, the news about the fact that goodwill is impaired, but secondly, the share price reaction will be conditioned by the view of sophisticated investors about the timeliness of the impairment, with the more (less) timely impairments receiving a reward for high (low) reporting quality. Thus, our second hypothesis is:

H2: Timelier impairments, signal more credible financial reporting and are reflected in a less adverse market response.

The reader may be questioning the realism of the three assumptions on which *H2* is based. One possible class of investors that might satisfy the first two assumptions are institutional investors who, through their professional advisors, are able to track the history of the firm's acquisitions and have ready access to information about the progress of the acquisition. Such investors materially influence share prices, and UK companies are aware of their importance in the equity market. Finally, it is well known that institutional investors dominate the market for UK

equities. For example, as of the end of 2017, institutional investors held 63% of UK listed equities (De La Cruz, Medina, & Tang, 2019).

4.2. *Research design in outline*

To test the first hypothesis, we begin by constructing a Tobit model[5] of the relation between goodwill impairments and current period stock returns that a) explicitly distinguishes between positive and negative stock returns; b) controls for the level of opening goodwill, as a potential determinant of impairments; and c) controls for other potential determinants of goodwill impairments documented by prior literature. We interpret the overall responsiveness of the level of impairments to bad news as our measure of the timeliness of impairments.

Having satisfied ourselves that our model of goodwill impairments performs satisfactorily, we then use this model to compare the timeliness of the impairments of high and low disclosure quality of firms. We expect firms with high levels of disclosure to exhibit greater timeliness than firms with low levels of disclosure. Thus, to validate this expectation, we investigate how our measure of timeliness differs between high and low disclosure firms.

To test our second hypothesis, we examine the abnormal stock returns in a 2-day window around the impairment announcement period. We examine whether the market reaction around the impairment announcement is related to goodwill impairments, and if this market response differs between high and low disclosure quality regimes. We expect firms with low levels of disclosure to have a less favourable market reaction to goodwill impairments compared to firms with high disclosure.

4.3. *Tobit model of impairment timeliness*

[5] We use Tobit regression rather than OLS regression because the dependent variable is bounded at zero.

Our model construction builds on prior studies of AbuGhazaleh, et al. (2011), Albersmann and Quick (2020), Glaum, et al. (2018), Ramanna and Watts (2012). The benchmark model of impairment timeliness can be represented as follows:

$$Impgdw = \alpha_0 + \alpha_1 Goodwill + \alpha_2 Ret + \alpha_3 Badnews + \alpha_4 Badnews * Ret + \alpha_5 Log(Size) + \alpha_6 Leverage + \alpha_7 MtB + \alpha_8 ROA + \alpha_9 Crisis + \alpha_{10} \Delta CEO + \alpha_{11} PrPro + \alpha_{12} IFRS + \alpha_{13} AIM + \alpha_{14} BigN + \alpha_{15} Closely\ Held\ Shares\ \% + \alpha_{16} InstOwn + \alpha_{16} Log(Rearend) + Industry + Year + e \quad (1)$$

where *Impgdw* is the firm's impairment charge divided by opening total assets; *Goodwill* is a measure of opening goodwill; *Ret* is the stock return for the 12-month period of the financial year t*; Badnews* is an indicator variable taking the value of one if *Ret* is negative and zero otherwise*; Log(Size)* is the log of the firm's market value of equity*; Leverage* is the ratio of total debt to total assets*; MtB* is the ratio of the market value of equity to book value of equity*; ROA* is the return on assets, calculated as operating income divided by total assets*; Crisis* is an indicator variable taking the value of one if the firm's financial year falls between 01/08/2007 and 30/07/2008 and zero otherwise*; ΔCEO* is an indicator variable taking the value of one if the CEO changed from t-1 to t, and zero otherwise; *PrPro* is the proportion of segment one sales to total sales; *IFRS* is an indicator variable taking the value of one if the firm has adopted IFRS, and zero otherwise; *AIM* is an indicator variable taking the value of one if the firm belongs to AIM market, and zero otherwise; *BigN* is an indicator variable taking the value of one if the firm's auditor is a Big N auditor, and zero otherwise; Closely Held Shares (%) *is* the ratio of the number of closely held shares (held by insiders) to outstanding common shares; *Instown* is the ratio all institutional ownership to firm's market capitalization; and *Rearend* is the total word count from the rear-end sections of the annual report.

In this model, the main coefficient of interest is the overall response of the dependent variable to bad news. This value is calculated by summing the coefficient values for *Ret* and the *Badnews * Ret*. We expect this value to be negative and significant for firms reporting timely impairments.

Views differ in the literature as to the most appropriate measure of opening goodwill to include in models of the determinants of goodwill impairments. Some authors include the whole amount of opening goodwill as a relevant variable. Others argue that, instead of opening goodwill, one should work with a measure of adjusted goodwill, which is opening goodwill adjusted by the expected goodwill (i.e., what the opening goodwill would have been if the firm had taken timely impairments in the past) (see K. K. Li and Sloan (2017) and André, et al. (2016)).

In recognition of this disagreement, we report results for three alternative measures of opening goodwill. These are:

Goodwill, which is the opening goodwill balance divided by opening total assets;

Goodwill_LS, which is a measure of adjusted goodwill (i.e., opening goodwill – expected goodwill). This variable is constructed based on K. K. Li and Sloan (2017), who identify the market and financial indicators of impairment. The market indicator (*BTMG1*) equals one if *BtM* is greater than one, and zero otherwise. The financial indicator (*IMPI*) equals one if *Goodwill* is greater than 10% and *ROA* is less than zero, and zero otherwise. According to K. K. Li and Sloan (2017), when *BTMG1* and *IMPI* are both equal to zero, the firm has taken timely impairments in the past, and we assume that the opening goodwill fairly represents the expected goodwill. In this scenario, the adjusted goodwill is zero as no further impairment is necessary. On the other hand, when *BTMG1* and *IMPI* are both equal to one, the firm has not taken timely impairments in the past, and we assume that if it had, its opening goodwill would have been impaired to zero. That is to say, the expected goodwill is zero. Therefore, in this

scenario, the adjusted goodwill equals the full amount of opening goodwill. Finally, when one of the impairment indicators (either *BTMG1* or *IMPI*) equals to one and the other equals to zero, part of the impairments has been taken timely in the past, and we assume that if the firm had taken the full amount of impairments timely in the past, its opening goodwill would have been reduced by half. In other words, the expected goodwill is half of the opening goodwill. Therefore, in this third scenario, the adjusted goodwill is half of the opening goodwill. Based on the above assumptions, *Goodwill_LS* is calculated as *Goodwill* * (*BTMG1* + *IMPI*)/2; and *Goodwill_AFP*, which is another measure of adjusted goodwill. This variable is constructed based on André, et al. (2016). Specifically, if the market value of equity minus the book value of equity is less than the opening goodwill, then *Goodwill_AFP* is set equal to *Goodwill*, and zero otherwise.

Fortunately, our main findings are not sensitive to the measure of opening goodwill that is included in the model.

In the tables presented below, we begin by reporting the results of estimating equation (1) on our full sample. Then, to compare the timeliness of the impairments for high disclosure firms and low disclosure firms, we report subset results for the upper and lower terciles of the disclosure measures described in the next subsection.

4.4. Proxies for disclosure quality

To construct our disclosure quality proxies, we rely on automated textual analysis of annual report commentaries provided by the *Corporate Financial Information Environment* (CFIE) project.[6] The CFIE project provides data that contain word count frequencies and other linguistic metrics for UK annual reports by firms listed on the London Stock Exchange for the

[6] A publicly available dataset of 10,443 annual reports from UK firms listed on the London Stock Exchange for the calendar years 2002-2014 is available at http://ucrel.lancs.ac.uk/cfie/#datasets.

calendar years 2002-2014. El-Haj, et al. (2019) provides an extensive discussion about the CFIE method of retrieving and classifying the text of digital PDF annual reports.

A unique feature of the CFIE procedure is that it is able to preserve the structure of the annual report and return information about each section of the document separately. Typically, annual reports have two broad elements: a narrative component located in the front part of the annual report, and the mandatory financial statement, footnotes and other statutory information located in the rear part of the annual report.[7] After each section is identified and categorized, the corresponding text is retrieved and processed in order to provide word frequency counts and other linguistic metrics.

Counting word frequencies based on a predefined list is a method of automated content analysis that aims to measure the level of disclosure of a particular type. The word lists are created based on a common theme (e.g., forward-looking, casual, strategy, etc.). In our analysis we focus on four-word count disclosure metrics: forward-looking, performance, causal, and strategic keywords. The forward-looking keywords are based on the combination of the word lists developed in F. Li (2010a) and Athanasakou and Hussainey (2014). The strategic keywords are based on the word list developed in Athanasakou, El-Haj, Rayson, Walker, and Young (2019). Finally, the performance and causal keywords are based on word lists constructed by the CFIE project.[8]

We also employ another disclosure metric that measures the readability of the annual reports using the Fog Index based on Gunning (1968).[9] Readability measures how well the reader of a

[7] The front-end sections include the introduction, the chairman's statement, the management commentary, the principal risk and uncertainties, the director's biographies, the directors' report, the corporate governance statement, the remuneration report, and other sections in the front-end. The rear-end sections include the statement of directors' responsibilities, the auditor's report, the primary financial statements, the notes to the financial statements, and miscellaneous disclosures.

[8] All word lists are available at http://ucrel.lancs.ac.uk/cfie/.

[9] Gunning (1968) defines the Fog Index as the estimated number of years of formal education a person needs to understand the text on first reading. It is calculated by adding the percentage of words in a text with three or more syllables to the average number of words per sentence, both multiplied by 0.4. For example, a Fog Index of twelve requires the reading level of a high school graduate, that is, someone around 18 years old.

particular text, annual reports in our case, can understand the intended message. More complex business writing will reduce the readability of the annual report making it more difficult and complicated to understand.

The decision to include forward-looking commentary is supported by the findings of Athanasakou and Hussainey (2014) that forward-looking information increases the quality of reported earnings. We include causal keywords because Zhang and Aerts (2015) find that firms provide more causal reasoning commentary when they fail to meet an earnings threshold. Using the CFIE data, Athanasakou, et al. (2019) find firms with increased strategy related commentary have lower investor uncertainty. F. Li (2008) finds that readability of annual reports, measured by the Fog Index, is associated with better performance and more persistence earnings. It is evident from the above that a firm has a higher disclosure quality when it uses more forward-looking, performance, causal reasoning and strategic commentary and its annual report is more readable.

To construct the variables relating to word counts, we perform the following steps. First, we obtain the counts for the forward-looking, performance, causal and strategic keywords from all the front-end sections of the annual report. Second, we sum the word counts across the front-end sections to obtain the overall word count. The only exception is for performance keywords in which we use only the performance-related sections of the front-end of the annual report.[10,11] Finally, we scale each overall word count by the total word count from the rear-end component of the annual report. The choice of the deflator is of particular concern as the front-end total word count contains the individual elements of the forward-looking, performance, causal, and strategic keyword lists. In contrast, using the total words from the rear-end section provides us with a firm-level measure of disclosure propensity that is not correlated with

[10] The performance-related sections of the front-end include the introduction, the chairman's statement, and the management review, such as the operating and financial review.

[11] Our inferences remain the same if we use all front-end sections to calculate performance keywords.

management's specific reporting strategy in the front-end sections (Athanasakou, et al., 2019).[12]

To obtain the Fog index for an annual report, we calculate the average value of the Fog index of all the front-end sections in the annual report weighted by the word counts of these sections. Finally, in order to examine the combined effect of all five disclosure measures we use principal component analysis to extract the first principal component from the five individual proxies. We name this new variable *PC Factor*. A more detailed description of the definition and measurement of the variables is presented in Appendix A.

4.5. Market Reaction Model

The model to test our second hypothesis is presented below:

$$CAR[0,1] = \alpha_0 + \alpha_1 UE + \alpha_2 Impgdw + \alpha_3 Log(Size) + \alpha_4 Leverage + \alpha_5 MtB + \alpha_6 ROA + \alpha_7 Crisis + \alpha_8 \Delta CEO + \alpha_9 PrPro + \alpha_{10} IFRS + \alpha_{11} AIM + \alpha_{12} BigN + \alpha_{13} Closely\ Held\ Shares\ \% + \alpha_{14} InstOwn + \alpha_{15} Log(Rearend) + Industry + Year + e \quad (2)$$

where *CAR[0,1]* is the cumulative abnormal return from trading day t to trading day t+1 relative to goodwill impairments announcement day; *UE* is the unexpected earnings and is calculated as the difference between actual EPS and mean analysts forecast consensus scaled by the share price. All other variables are defined in Appendix A.

We calculate the abnormal returns for the announcement date and the following day using the market adjusted model. More specifically, the abnormal returns are measured as the difference between the firm i's stock return and the return on the FTSE All-Share Index. We

[12] As a robustness test, we scale the word count variables with the total word count from the front-end component of the annual report. Our inferences are not sensitive to such variable construction. The results are reported in the internet appendix.

treat the earnings announcement day as the event date t = 0, that is, the announcement of the goodwill impairment.[13]

In model (2), the main coefficient of interest is α_2. To compare high disclosure firms and low disclosure firms, we report subset results for the upper and lower terciles of *PC Factor* described in the previous subsection. Our second main hypothesis predicts that α_2 will differ between high and low disclosure firms. We expect α_2 to be more negative for the low disclosure group.

5. Data, Sample Selection, and Main Results

5.1. Sample Selection

Our starting sample of companies consists of all UK listed firms in Datastream[14] that have positive opening goodwill. Accounting data is collected from Datastream, information on the CEO changes is from BoardEx, institutional ownership data are from Factset, and data on disclosure quality measures come from the CFIE project. CFIE provides disclosure quality measures from UK annual reports for the years 2002-2014. This last point dictates our sample period. After removing observations not matched with the CFIE database, we have a sample of 8,614 observations for 1,347 UK listed firms. Finally, we remove 3,687 observations with missing data on test and control variables. The final sample consists of 4,927 observations and 1,110 firms. For the market reaction model, we require data from I/B/E/S, and that restricts our sample further.

5.2. Summary Statistics and Correlation Analysis

[13] We searched Factiva for a small sample of firms with goodwill impairments to better understand when they announce their goodwill impairments. We used a variety of keywords (goodwill, impairment, write-off, write-down) to identify any relevant announcements from the company. Our conclusion is that most of the time, the amount of goodwill impairment is announced with the preliminary earnings announcement.

[14] We use the WSCOPEUK constituent list to extract all dead and active firms listed in the UK from Datastream.

Table 1 Panel A reports the descriptive statistics for the variables used in the tobit model. Panel A shows that the mean value of the dependent variable, *Impgdw*, is 0.7%. The mean value of opening goodwill to total assets is 22.9% indicating that opening goodwill is a material proportion of company total assets on average. The mean (median) annual stock return of the sample is 9.5% (3.8%). The mean value of *Badnews* indicates that the firms in our sample experienced negative returns in 42% of the company years. Across all years, the mean bad news return, given by *Badnews* * *Ret*, was -12.8%.

For the control variables, it is notable that the mean firm size is much higher than the median, consistent with the size distribution being highly skewed, thus supporting the use of the log of size in the regression model. The mean value of *Leverage* is 18.3% indicating that the average firm in the sample has modest levels of borrowing. The mean value of *MtB* indicates that market value materially exceeds book value on average. The 50th percentile for *ROA* indicates that over 69% of the company years in the sample are profitable. The mean value for the *Crisis* indicates that 10.6% of our observations arose during the debt crisis. The change in CEO dummy indicates that roughly one in five of the company years involved a change in CEO. This is in line with the findings of prior UK studies of CEO changes (see, for example, Marshall, McCann, and McColgan (2014), and PWC (2017)). The mean value of *PrPro* indicates that, on average, 74.6% of firm sales are generated by one product category. Almost one-third of the company years in the sample are listed in the AIM market. More than half the company years are audited by a BigN auditor. The mean value of *Closely Held Shares (%)* is 34.8% indicating that the average firm in the sample has roughly one-third of its shares held by insiders. Finally, the mean value of *InstOwn* indicates that the average firm has 21.7% of shares held by institutional owners.

For the textual (disclosure) variables, the mean and median values of the *PC Factor* are 0.4% and -9.8%, respectively, indicating a degree of negative skewness in this variable. Consistent

with this inference, we can see that the mean of the *Fog Index* exceeds its median, and the mean is lower than the median for the other four components of *PC Factor*. Note that lower values of the *Fog Index*, indicating that text is easier to read, contribute positively to the *PC Factor*. The mean values for the four-word count variables indicate that counts of 1.9%, 0.9%, 0.7%, and 3.0% of the words in the company narratives consist of forward-looking, performance, causal, and strategic keywords. The sum of the means of these components is 6.5%.

In Table 1 Panel B, we present the descriptive statistics by *PC Factor* subsamples for the variables used in the tobit model. Firms in the upper tercile are significantly larger (*SIZE*) and more profitable (*ROA*) both in mean and median. In addition, they change their CEO's less frequently and are more likely to be audited by a *BigN* auditor, and their insiders hold a lower percentage of the equity. All four word-count-based measures of disclosure are higher for the high disclosure tercile, but the difference in the FOG index between the two terciles is not material.

Table 1 Panel C provides an indication of how the mean values of goodwill variables change over time. The *Impdum* dummy indicates the proportion of the firms taking impairments in each year of the sample period. The highest value occurs in 2002 when roughly a third of the firms in the sample took an impairment. However, we note that this value may not be representative of that year because the CFIE data had limited coverage for that year. The next highest year for the mean of *Impdum* is 2008, which contains the first set of annual reports following the start of the financial crisis. It is not surprising that this year saw a spike in the number of impairments, given the significant declines in stock prices and the very considerable increase in economic uncertainty at the time. Apart from the spike in *Impdum* and *Impgdw* in 2008, there are no obvious trends in the data. Similarly, there are no obvious trends in any of the three goodwill variables. Thus, it seems that the inclusion of a crisis dummy in the model,

along with a year dummy, should be more than sufficient to control for any time effects in the data.

Regarding the materiality of goodwill impairments, Column 2 of Table 1 Panel C indicates that *Impgdw* for firm-years with goodwill impairment ranges from 0.004 to 0.069. Again, the spikes occur in 2002 and 2008, respectively. But more importantly, the mean values show that that goodwill impairments are material.

[Insert Table 1]

Table 2 reports the Pearson correlation matrix for the full sample. Focusing on the correlations with the dependent variable (*Impgdw*), the three goodwill variables are significantly positively correlated with the level of impairment taken at the end of the year. Firms with higher levels of opening goodwill tend to report higher levels of impairment. We also see that the level of impairment is negatively correlated with current year stock returns. Moreover, this negative correlation is materially stronger for bad news returns. Six of the seven control variables exhibit significant correlations with the level of impairment. In particular, more profitable firms tend to have lower impairments, and firms tend to take higher impairments in the year of a change in the CEO. More focused (higher *PrPro*) and more levered firms tend to take lower impairments. *MtB* is not significant in the sample, nor is the crisis dummy. This latter finding is likely because the time dummies also capture the effect of the crisis. Finally, it is important to note that the variables in the main regression model are typically not significantly correlated with any of the six textual variables. The one minor exception is the small positive correlation between strategic textual content and bad news, but the value of this correlation is small (2.6%) and significant only at the 10% level.

Turning to the correlations between independent variables included in the regression model, we notice a high level of correlation between the three goodwill variables. However, this is not

a concern because these variables appear in different versions of the model. None of the three goodwill variables exhibit correlations with the other independent variables to warrant multicollinearity concerns. As expected, *Badnews* is highly negatively correlated with both *Ret* and *Badnews * Ret*. Also, *Badnews * Ret* is positively correlated with *Ret*. None of the correlations of the three returns variables with the remaining independent variables in the model are high enough to warrant concerns about multicollinearity. The same applies to all other correlations between the independent variables in the model.

[Insert Table 2]

5.3. Empirical Results

Table 3 presents the results of running the Tobit regression on the full sample. In addition to reporting t values for all the variables in the model, it also reports the t value for the sum of the *Ret* and *Badnews * Ret*, as this captures the main effect of interest for this study, i.e., the response of the level of impairments to negative returns. Overall, we believe that these results provide a reliable indicator of the drivers of goodwill impairments in our sample. In particular, the goodness of fit of the model, indicated by the Pseudo R^2, is impressively high for a study of this kind.

Of particular interest are the associations between the three return variables and the level of impairments. Our expectation is that impairments are likely to be strongly associated with the level of bad news. This expectation is confirmed in all three versions of the main model. Interestingly, *Ret* (i.e., positive returns) is not associated with the level of impairments; it is only the negative returns that are associated with impairments, consistent with the intuition that bad news drives impairments.

The results in Table 3 also clearly indicate that opening goodwill is significantly and positively associated with the level of impairments. This is confirmed for all three measures of opening goodwill as reported in columns (1) to (3).

[Insert Table 3]

Turning to the control variables, we note that *Size* exhibits a significant positive association with the level of impairment. Consistent with intuition, more profitable (higher *ROA*) and more focused (higher *PrPro*) firms exhibit lower levels of impairment, and firms changing their CEO exhibit higher levels of impairment. The presence of a big auditor decreases the level of impairments (lower *BigN*). The *Crisis* dummy is negatively significant in Columns 1 and 3 but not in Column 2. All other control variables are insignificant.

Overall, we conclude that the model reported in Table 3 provides a good basis for identifying and measuring the timeliness of impairments with respect to the information reflected in stock returns. Thus, in the remainder of this paper, we examine the sensitivity of the findings in Table 3 to the disclosure stance of firms in the sample. For this purpose, we use the six textual variables to group the firm years according to the level of disclosure. We compare the results by running the Tobit model separately for firms in the top and bottom terciles of the textual disclosure variables.

Table 4 reports our findings for the case where the level of disclosure is represented by the *PC Factor*.[15] In Table 4, we see that the main variable of interest (i.e., *Ret* + *Badnews* * *Ret*) is negative and highly significant only for the high disclosure group. This result is consistent with the hypothesis that firms with a high level of disclosure are more likely to report timely impairments. The difference in the relevant coefficient between the high and the low disclosure

[1515] We regard Table 4 as our main result, but we also report results for the five components of *PC Factor* for the sake of transparency in the internet appendix.

groups is also economically material (with the highest tercile coefficient being more than three times the value for the lowest disclosure tercile).

[Insert Table 4]

5.4. Endogeneity Tests

Certain factors, e.g., firm performance, economic outlook, may jointly affect the level of disclosure and the timeliness of goodwill impairment. Therefore, using the contemporaneous level of disclosure, *PC Factor*, as our conditioning variable may lead to incorrect inferences about the presence and direction of causality. In particular, because of unobservable confounders, it may not be safe to conclude that high (low) disclosure causes impairments to be more (less) timely. To alleviate concerns that our findings provide a mere association between disclosure quality and the timeliness of goodwill impairment, we perform two additional tests.

First, we employ an endogenous switching regression (Maddala, 1983) to account for potential endogeneity of the firm's disclosure quality selection and goodwill impairment choice. We simultaneously estimate a selection equation that determines which of the two disclosure regimes the firm belongs to and two equations based on model (1) for the high and low disclosure regimes. As Bharath, Sunder, and Sunder (2008) note, the selection model does not need to include a different set of control variables than the ones in the outcome models. Nevertheless, and similar to Bharath, et al. (2008), we include an exogenous variable in the selection model, the prior level of disclosure, to increase the identification and reliability of our estimates.[16] Specifically, to construct the prior value of disclosure, we regress the current year *PC Factor* on the lagged *PC Factor*, and then use the fitted values of this regression as the predicted value of current year disclosure based on prior year information. We call this new

[16] The estimation results of the selection model are presented in the Internet Appendix.

variable *Pred PC Factor*. This research design controls for the potential endogeneity of a firm's disclosure level selection using the error terms of the selection and outcome equations. This allows for unobservable characteristics to influence both the firm's disclosure level selection and the model of impairment timeliness.

In the second endogeneity test, we change the conditioning variable and use the prior level of disclosure as an instrumental variable for current year disclosure. Using *Pred PC Factor*, which is described above, we re-estimate the upper and lower terciles of disclosure.

Table 5 presents the results of our tests for endogeneity. Like Table 4, our main variable of interest, *Ret + Badnews*Ret*, is significantly negative for the high disclosure group only in both tests. These results show that our previous finding, that firms with higher levels of disclosure are more likely to have timely impairments, still holds after controlling for the possibility of endogeneity between the level of disclosure and the timeliness of goodwill impairment.

[Insert Table 5]

5.5. Test of Hypothesis 2

Table 6 presents the results of estimating model (2) on the full sample and the two subsamples. In Table 6, the main variable of interest, *Impgdw*, is positive and significant at the 10% level for the high disclosure group and negative, but insignificant for the low disclosure subsample. A test of the difference in the *Impgdw* coefficients of the high and low disclosure subsamples is significant at the 5% level. This finding is further supported when we deploy an interaction term specification of the model rather than a split sample analysis. This result implies that the market response to the impairments of high disclosure firms is significantly less negative than the market response to the impairments of low disclosure firms, thereby supporting hypothesis 2.

[Insert Table 6]

5.5. Other Robustness tests[17]

Our main sample contains observations from both pre- and post- the mandatory adoption of IFRS. To alleviate any concerns that our results are affected by the different accounting requirements for goodwill and impairment testing, we constrain the sample to the post-IFRS period only. The results are presented in Table 7, Panel A for hypothesis 1 and in Panel C for hypothesis 2. Our inferences are robust to this sample specification issue.

To investigate whether our results are sensitive to the construction of the disclosure measure, we use an alternative disclosure measure. Following Athanasakou, et al. (2020), *DiscIndex* is the percentile rank of the sum of the fractional ranks of Causal, Forward-Looking, Performance and Strategic keywords and Fog Index. For this particular disclosure measure, we do not scale the word counts. Table 7 Panel B for hypothesis 1 shows that our variable of interest, *Ret + Badnews*Ret*, is significant only in the high disclosure sample. Table 7 Panel D for hypothesis 2 indicates that the test of the difference in the *Impgdw* coefficients of the high and low disclosure subsamples is significant at the 10% level. The above results alleviate the concern that our main finding is driven by a particular disclosure measure construction.

[Insert Table 7]

6. Concluding Remarks and Implications for Policy

This paper makes three significant contributions to the empirical literature concerned with the timeliness, or otherwise, of goodwill impairments.

Firstly, previous papers have produced results consistent with the view that goodwill impairments tend to lack timeliness. We contribute to this literature by producing a model of

[17] We provide three further robustness tests in the internet appendix.

the level of goodwill impairments that measures the timeliness of impairments relative to the news reflected in contemporaneous stock returns. This model performs remarkably well for our full sample of UK companies. When implemented for the full UK sample, the model indicates that impairment levels are responsive to negative returns (and not positive returns) and are greater for firms with higher levels of opening goodwill and for firms changing their CEOs. The results for the full sample regression also indicate that more profitable and more focused firms tend to have lower levels of impairment. We suggest that this model might prove useful for similar research on other individual countries or for international studies.

Secondly, we argue that the firms that are unwilling to record timely impairments are also more likely to seek to hide information from shareholders that is useful for assessing the firm's performance, strategy, and prospects. Thus, as our first main hypothesis, we predict that firms with relatively low levels of disclosure will record less timely impairments. The results presented in Table 4 strongly support this view.

Third, if timely impairments provide a signal of high-quality reporting, then one also expects the market response to impairments to be less negative for more timely disclosures. We test this signalling argument as our second hypothesis and find that the market response to impairments is indeed less negative for high disclosure firms than for low disclosure firms.

These findings matter in relation to the appropriate policy response to prior findings that a significant proportion of impairments are delayed. There is a tendency in the literature to infer from this finding that the current goodwill reporting standard has failed because it allows too much discretion over the timing of impairments. However, our evidence is consistent with an alternative point of view that is more optimistic about the economic effects of the current standard. Our view is that the current standard is correct in principle and should not be abandoned. However, we would support the new disclosure requirements proposed in IASB (2020) that are designed to improve how the current standard is implemented.

Arguably, the main disadvantage of the current standard is that it fails to address the incentives of managers to hide information that calls into question the quality of their decision making. Managers that overpay for acquired goodwill have too much discretion over the timing of goodwill impairments. If one accepts that this is the main problem with the current standard, then one needs to consider whether delayed impairments have material economic consequences and if so, are there ways that such consequences might be mitigated? In our view, the negative economic consequences of delayed impairments, can be significantly mitigated if the market can provide a counterweight to managers' incentives to avoid reporting impairments.

One way that the market may be able to provide a counterweight to incentives to hide impairments is if high-quality managers can signal their quality to the market by taking timely impairments. If the market can interpret timely impairments as a signal of the quality of a firm's management, then firms that make timely impairments will earn a market premium, and firms that fail to take timely impairments will suffer a market penalty.

Consistent with this signalling argument, a recent theoretical paper by Corona and Randhawa (2018) argues that firms can establish a reputation by admitting mistakes to build a reputation. They cite timely goodwill impairments as an accounting choice that some firms might make in order to build reputational capital. Our evidence in favour of H2 supports this reputational/signalling point of view. More generally, in game-theoretic terms, our findings support the view that the current equilibrium is partially separating in the sense that there are some high-quality firms that are issuing reasonable, timely impairments. In an ideal world, this would lead to an unravelling whereby the very good separates from the rest, then the quite good separate from the less good, etc. If this is the correct interpretation, then arguably, the appropriate policy response is to retain the current standard but encourage and recognise firm-level behaviours and structures that encourage the unravelling process. We believe that the new

disclosure proposals in IASB (2020) might encourage unravelling, and encourage more firms to book timely impairments.

The results should also be of interest to investors. Investors in firms with high levels of goodwill on the balance sheet, and low levels of disclosure relative to their peer group, might find it useful to study and question the lack of goodwill impairments.

This study has several limitations that provide scope for further research. First, it is possible that our model of goodwill impairments could be improved by introducing additional control variables or by tailoring it more closely to the firm or industry context. Second, there is scope for further development of the most appropriate measure, or measures, of opening goodwill to include in the model. Third, there is scope for experimentation with alternative measures of disclosure quality. Fourth, this paper only studies goodwill impairments. There is scope for extending the study to include other asset impairments alongside goodwill impairments. Fifth, the study has not considered the possibility that the choice of narrative disclosure quality and the choice to book an impairment may be taken at different levels within the firm. We view this logical possibility as an interesting area for future research, perhaps initially through qualitative research methods. Finally, our research design cannot speak to the extent to which our main results arises because higher levels of disclosure make it easier for investors to detect the failure to book an impairment or because firms that behave opportunistically with respect to accounting choices also choose to be less transparent. Perhaps the true answer is that it is a mixture of the two.

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Appendix A
Definition and Measurement of Variables

Variables	*Definition and Measurement*
Firm Variables (sources: Datastream, BoardEx, Factset, I/B/E/S; Worldscope item in parentheses)	
AIM	An indicator variable taking the value of one if the firm belongs to AIM market, and zero otherwise.
Badnews	An indicator variable taking the value of one if *Ret* (defined below) is negative, and zero otherwise.
BigN	An indicator variable taking the value of one if the firm's auditor is a Big N auditor, and zero otherwise.
CAR[0,1]	The cumulative abnormal return from trading day t to trading day t+1 relative to goodwill impairments announcement day.
Closely Held Shares %	The ratio of the number of closely held shares (held by insiders) to outstanding common shares.
Crisis	An indicator variable taking the value of one if the firm's financial year falls between 01/08/2007 and 30/07/2008, and zero otherwise.
ΔCEO	An indicator variable taking the value of one if the CEO changed from t-1 to t, and zero otherwise.
Goodwill	The opening goodwill balance (18280) divided by opening total assets (2999).
Goodwill_LS	A proxy for adjusted goodwill based on K. K. Li and Sloan (2017) who identify the market and financial indicators of impairment. The market indicator (*BTMG1*) equals one if *BtM* is greater than one, and zero otherwise. *BtM* is the ratio of book value of equity (3501) to market value of equity (mv). The financial indicator (*IMPI*) equals one if *Goodwill* is greater than 10% and *ROA* is less than zero, and zero otherwise. When BTMG1 and *IMPI* are both equal to zero, the firm has probably taken timely impairments in the past and we assume that the adjusted goodwill is zero since no further impairment is necessary. If *BTMG1* and *IMPI* are both equal to one, then the firm has probably not taken timely impairments in the past and we assume the adjusted goodwill is equal to the full amount of opening goodwill. When one of the impairment indicators (either *BTMG1* or *IMPI*) equals to one and the other equals to zero, part of the impairments has been taken timely in the past and assume that the adjusted goodwill is half the opening goodwill. *Goodwill_LS* is calculated as *Goodwill* * (*BTMG1* + *IMPI*)/2.
Goodwill_AFP	A proxy for adjusted goodwill based on André, et al. (2016). If the market value of equity minus book value of equity is less than goodwill [(mv-2999) < 18280] then *Goodwill_AFP* is equal to *Goodwill*, otherwise *Goodwill_AFP* is equal to zero.
IFRS	An indicator variable taking the value of one if the firm has adopted IFRS, and zero otherwise.
Impgdw	The firm's impairment charge (18225) divided by opening total assets (2999).
Impdum	An indicator variable taking the value of one if the firm has an impairment charge (18225), and zero otherwise
InstOwn	Ratio of the sum of all institutional ownership to firm's market capitalization (Ferreira & Matos, 2008).
Leverage	Ratio of total debt (3255) to total assets (2999).
MtB	Ratio of the market value of equity (mv) to book value of equity (3501).
PrPro	The proportion of segment one sales (19501) to sales (1001).
Ret	The stock return for the current financial year.
ROA	Return on assets, calculated as operating income (1250) divided by total assets (2999).
Size	The firm's prior year's total assets (2999).
UE	The unexpected earnings and is calculated as the difference between actual EPS and mean analyst consensus forecast scaled by share price. Both variables are obtained from I/B/E/S.
Textual Variables (source: CFIE)	
Causal keywords	Ratio of the sum of causal keywords from the front-end sections of the annual report to the total word count from the rear-end sections of the annual report. The front-end sections include

	the introduction, the chairman's statement, the management commentary, the principal risk and uncertainties, the director's biographies, the directors' report, the corporate governance statement, the remuneration report, and other sections in the front-end. The rear-end sections include the statement of directors' responsibilities, the auditor's report, the primary financial statements, the notes to the financial statements, and miscellaneous disclosures.
DiscIndex	*DiscIndex* is the percentile rank of the sum of the fractional ranks of *Causal*, *Forward-Looking*, *Performance* and *Strategic* keywords and *Fog Index.* All word count variables are undeflated.
Fog Index	The average value of the Fog index of all the front-end sections in the annual report weighted by the word counts of these sections.
Forward-Looking keywords	Ratio of the sum of forward-looking keywords from the front-end sections of the annual report to the total word count from the rear-end sections of the annual report. The front and rear-end sections of the annual report are defined above.
PC Factor	The principal component from the principal component analysis of *Causal*, *Forward-Looking*, *Performance* and *Strategic* keywords and *Fog Index.*
Performance keywords	Ratio of the sum of performance keywords from the performance related sections of the front-end of the annual report to the total word count from the rear-end sections of the annual report. The performance related sections of the front-end include the introduction, the chairman's statement, and the management commentary. The rear-end sections of the annual report are defined above.
Rearend	The total word count from the rear-end sections of the annual report. The front and rear-end sections of the annual report are defined above.
Strategic keywords	Ratio of the sum of strategic keywords from the front-end sections of the annual report to the total word count from the rear-end sections of the annual report. The front and rear-end sections of the annual report are defined above.

Table 1
Summary Statistics and Sample Distribution

***Panel A**: Summary Statistics of Full Sample*				
	Mean	*Median*	*Std. Dev.*	*N*
Firm Variables				
Impgdw	0.007	0.000	0.030	4,779
Goodwill	0.229	0.172	0.207	4,779
Goodwill_LS	0.036	0.000	0.098	4,631
Goodwill_AFP	0.184	0.097	0.225	4,779
Ret	0.095	0.037	0.482	4,779
Badnews	0.420	0	0.494	4,779
*Badnews * Ret*	-0.128	0.000	0.204	4,779
Size (£m)	1,179.371	101.706	3,636.294	4,779
Leverage	0.183	0.153	0.170	4,779
MtB	2.419	1.700	4.663	4,779
ROA	0.051	0.069	0.132	4,779
Crisis	0.106	0	0.308	4,779
ΔCEO	0.202	0	0.401	4,779
PrPro	0.746	0.759	0.231	4,779
IFRS	0.798	1	0.401	4,779
AIM	0.341	0	0.474	4,779
BigN	0.564	1	0.496	4,779
Closely Held Shares %	0.301	0.271	0.237	4,779
InstOwn	0.253	0.262	0.165	4,779
Textual Variables				
PC Factor	0.004	-0.098	1.019	4,779
Fog Index	25.115	22.326	22.267	4,779
Fwlook	0.019	0.012	0.056	4,779
Perf	0.009	0.006	0.026	4,779
Causal	0.007	0.005	0.019	4,779
Strategic	0.030	0.021	0.086	4,779
Rearend	19,807.863	17,064.000	13,162.806	4,779

Table 1 (Cont'd)
Summary Statistics and Sample Distribution

***Panel B**: Summary Statistics of Lower and Upper Tercile of PC Factor*

	Lower Tercile of *PC Factor*				Upper Tercile of *PC Factor*			
Variables	*Mean*	*Median*	*Std. Dev.*	*N*	*Mean*	*Median*	*Std. Dev.*	*N*
Firm Variables								
Impgdw	0.009	0.000	0.035	1,857	0.006***	0.000	0.026	1,350
Goodwill	0.233	0.166	0.218	1,857	0.230	0.181	0.197	1,350
Goodwill_LS	0.042	0.000	0.109	1,792	0.032***	0.000***	0.089	1,324
Goodwill_AFP	0.192	0.100	0.240	1,857	0.182	0.099	0.220	1,350
Ret	0.076	0.010	0.506	1,857	0.112**	0.064***	0.453	1,350
Badnews	0.447	0	0.497	1,857	0.399**	0***	0.490	1,350
*Badnews * Ret*	-0.144	0.000	0.215	1,857	-0.113***	0.000***	0.192	1,350
Size (£m)	1,052.222	58.197	3,592.608	1,857	1,293.129***	190.563***	3,497.741	1,350
Leverage	0.186	0.151	0.173	1,857	0.181	0.162	0.161	1,350
MtB	2.440	1.562	4.753	1,857	2.411	1.930***	4.465	1,350
ROA	0.033	0.062	0.148	1,857	0.071***	0.074***	0.105	1,350
Crisis	0.111	0	0.314	1,857	0.107	0	0.310	1,350
ΔCEO	0.226	0	0.418	1,857	0.179***	0**	0.383	1,350
PrPro	0.764	0.792	0.226	1,857	0.723***	0.715***	0.237	1,350
IFRS	0.792	1	0.406	1,857	0.798	1	0.402	1,350
AIM	0.424	0	0.494	1,857	0.239***	0***	0.427	1,350
BigN	0.484	0	0.500	1,857	0.676***	1***	0.468	1,350
Closely Held Shares %	0.348	0.321	0.249	1,857	0.247***	0.205***	0.211	1,350
InstOwn	0.217	0.206	0.169	1,857	0.290***	0.300***	0.153	1,350
Textual Variables								
PC Factor	-0.185	-0.214	0.213	1,857	0.334***	0.080***	1.784	1,350
Fog Index	25.158	22.328	17.607	1,857	25.189	22.447	21.811	1,350
Fwlook	0.010	0.008	0.020	1,857	0.034***	0.021***	0.094	1,350
Perf	0.004	0.004	0.004	1,857	0.017***	0.011***	0.047	1,350

Table 1 (Cont'd)
Summary Statistics and Sample Distribution

Causal	0.003	0.002	0.004	1,857	0.013***	0.008***	0.035	1,350
Strategic	0.015	0.012	0.018	1,857	0.057***	0.037***	0.140	1,350
Rearend	21,825.991	17,295.000	16,401.273	1,857	16,962.322***	16,148.500***	9,291.643	1,350

Panel C: *Sample Distribution by Year*

Year	*Impgdw*	*Impgdw for goodwill impairment observations only*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*	*Impdum*
2002	0.001	0.004	0.182	0.000	0.182	0.333
2003	0.006	0.041	0.206	0.029	0.187	0.151
2004	0.005	0.038	0.207	0.047	0.131	0.145
2005	0.007	0.050	0.205	0.023	0.150	0.142
2006	0.006	0.039	0.227	0.024	0.165	0.145
2007	0.006	0.045	0.214	0.012	0.169	0.130
2008	0.014	0.069	0.235	0.038	0.215	0.206
2009	0.007	0.046	0.258	0.048	0.234	0.160
2010	0.006	0.052	0.245	0.062	0.205	0.122
2011	0.006	0.048	0.243	0.046	0.198	0.138
2012	0.006	0.047	0.243	0.040	0.194	0.121
2013	0.004	0.024	0.232	0.037	0.163	0.176
2014	0.006	0.032	0.209	0.023	0.150	0.176

Notes: Our full sample contains 4,927 firm-years between 2002 and 2014. The table also reports in Panel B the test of differences in means (t-test) and medians (Wilcoxon rank sum test) between lower and upper tercile of *PC Factor*. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 2
Pearson Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12
1 Impgdw												
2 Goodwill	0.281***											
3 Goodwill_FS	0.226***	0.496***										
4 Goodwill_AFP	0.258***	0.832***	0.509***									
5 Ret	-0.123***	-0.106***	-0.001	-0.104***								
6 Badnews	0.108***	0.107***	0.036**	0.124***	-0.705***							
*7 Badnews * Ret*	-0.161***	-0.131***	-0.072***	-0.148***	0.713***	-0.734***						
8 *Log(Size)*	-0.070***	-0.101***	-0.148***	-0.067***	0.035**	-0.122***	0.173***					
9 *Leverage*	-0.026*	0.020	-0.063***	0.050***	-0.028*	0.003	-0.016	0.292***				
10 MtB	-0.010	-0.053***	-0.113***	-0.157***	0.037**	-0.056***	0.080***	0.066***	-0.027*			
11 ROA	-0.157***	-0.143***	-0.141***	-0.106***	0.184***	-0.197***	0.276***	0.363***	0.079***	0.058***		
12 Crisis	-0.006	-0.030**	-0.079***	-0.024*	-0.127***	0.151***	-0.113***	-0.052***	0.008	0.029**	-0.004	
13 ΔCEO	0.045***	0.029**	0.026*	0.030**	-0.058***	0.049***	-0.064***	-0.043***	-0.004	-0.005	-0.053***	0.003
14 PrPro	-0.042***	-0.083***	-0.023	-0.101***	-0.022	0.047***	-0.068***	-0.267***	-0.060***	0.024*	-0.110***	0.016
15 IFRS	-0.010	0.010	0.009	0.027*	-0.149***	0.146***	-0.141***	0.172***	-0.017	-0.005	0.112***	0.107***
16 AIM	0.047***	0.096***	0.153***	0.093***	-0.033**	0.088***	-0.148***	-0.540***	-0.163***	-0.078***	-0.240***	0.027*
17 BigN	-0.060***	-0.052***	-0.084***	-0.052***	0.052***	-0.078***	0.106***	0.403***	0.091***	0.017	0.144***	-0.038***
18 Closely Held Shares %	0.061***	0.055***	0.128***	0.066***	-0.030**	0.101***	-0.117***	-0.493***	-0.113***	-0.062***	-0.159***	-0.001
19 InstOwn	-0.061***	-0.016	-0.147***	-0.037	0.044**	-0.081***	0.129***	0.477***	0.062***	0.084***	0.277***	-0.012
20 Rearend	-0.016	-0.039***	-0.067***	-0.022	-0.039***	0.012	0.007	0.512***	0.150***	0.038***	0.192***	-0.015
21 PC Factor	-0.007	-0.007	-0.013	-0.001	0.004	-0.004	0.020	0.105***	0.038***	-0.011	0.031**	-0.010
22 Fwlook	-0.008	-0.023	-0.022	-0.014	-0.001	-0.003	0.018	0.129***	0.050***	-0.004	0.031**	-0.009
23 Perf	-0.001	0.006	0.003	0.012	0.006	-0.004	0.017	0.062***	0.031**	-0.018	0.029*	-0.009
24 Causal	-0.007	-0.010	-0.009	-0.003	0.002	-0.004	0.015	0.090***	0.038**	-0.017	0.027*	-0.005
25 Strategic	-0.009	0.000	-0.020	-0.001	0.005	-0.002	0.026*	0.118***	0.026*	-0.001	0.030**	-0.016
26 Fog Index	0.016	0.016	0.006	0.018	0.021	0.000	-0.012	-0.002	0.013	-0.015	-0.016	-0.005

	13	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*
13 ΔCEO														
14 PrPro	-0.003													
15 IFRS	-0.014	-0.141***												
16 AIM	0.043***	0.165***	-0.053***											
17 BigN	-0.052***	-0.160***	0.061***	-0.291***										
18 Closely Held Shares %	0.088***	0.159***	-0.050***	0.279***	-0.279***									
19 InstOwn	-0.095***	-0.130***	0.140***	-0.338***	0.342***	-0.504***								
20 Rearend	-0.024*	-0.237***	0.458***	-0.237***	0.230***	-0.218***	0.263***							
21 PC Factor	-0.021	-0.056***	-0.026*	-0.080***	0.073***	-0.094***	0.080***	-0.365***						
22 Fwlook	-0.018	-0.047***	-0.004	-0.091***	0.078***	-0.104***	0.082***	-0.366***	0.906***					
23 Perf	-0.023	-0.043***	-0.049***	-0.061***	0.052***	-0.064***	0.055***	-0.354***	0.958***	0.782***				
24 Causal	-0.017	-0.046***	-0.038***	-0.072***	0.067***	-0.079***	0.063***	-0.345***	0.970***	0.820***	0.976***			
25 Strategic	-0.020	-0.075***	-0.006	-0.081***	0.078***	-0.110***	0.101***	-0.312***	0.934	0.822***	0.846***	0.855***		
26 Fog Index	0.025	-0.018	0.035**	0.041***	0.001	-0.011	0.020	-0.028	0.028	0.017	0.011	0.015	0.034**	

Notes: This table presents the Pearson correlation coefficients among the variables used in the main tests. Refer to Appendix A for definition and measurement of variables. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 3
The Timeliness of Goodwill Impairments

	Goodwill (1)	*Goodwill_LS* *(2)*	*Goodwill_AFP* *(3)*
Goodwill	0.141***	0.179***	0.112***
	(9.12)	(6.57)	(8.26)
Ret	-0.009	-0.014	-0.012
	(-1.03)	(-1.47)	(-1.35)
Badnews	-0.001	-0.000	-0.003
	(-0.11)	(-0.02)	(-0.36)
*Badnews * Ret*	-0.058***	-0.063***	-0.057***
	(-2.77)	(-2.78)	(-2.74)
Log(Size)	0.008***	0.009***	0.008***
	(3.54)	(4.01)	(3.55)
Leverage	-0.021	-0.010	-0.019
	(-1.21)	(-0.59)	(-1.10)
MtB	-0.000	-0.000	0.000
	(-0.47)	(-0.18)	(0.41)
ROA	-0.122***	-0.150***	-0.144***
	(-5.23)	(-5.67)	(-5.81)
Crisis	-0.017*	-0.013	-0.017*
	(-1.89)	(-1.39)	(-1.78)
ΔCEO	0.014**	0.014**	0.014**
	(2.30)	(2.30)	(2.31)
PrPro	-0.055***	-0.058***	-0.055***
	(-4.41)	(-4.56)	(-4.37)
IFRS	0.007	-0.001	0.004
	(0.58)	(-0.05)	(0.39)
AIM	-0.009	-0.008	-0.009
	(-1.18)	(-0.96)	(-1.13)
BigN	-0.017***	-0.018***	-0.018***
	(-2.73)	(-2.76)	(-2.76)
Closely Held Shares %	0.008	0.008	0.007
	(0.58)	(0.54)	(0.48)
InstOwn	-0.021	-0.010	-0.018
	(-0.97)	(-0.46)	(-0.85)
Log(Rearend)	0.006	0.005	0.006
	(1.14)	(0.87)	(1.04)
Constant	-0.647***	-0.705	-0.650***
	(-3.89)	(-0.35)	(-10.40)
*Ret + Badnews * Ret*	-0.067***	-0.077***	-0.070***
	(-3.72)	(-3.97)	(-3.84)
Industry Effects	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes
Pseudo R^2	0.435	0.395	0.416
N	4,779	4,631	4,779

Notes: This table presents the tobit estimation results of impairment levels on contemporaneous drivers of impairments. The dependent variable is *Impgdw*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 4
The Effect of Disclosure on the Timeliness of Goodwill Impairments

	Lower Tercile of *PC Factor*			Upper Tercile of *PC Factor*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	(2)	(3)	(4)	(5)	(6)
Goodwill	0.161***	0.159***	0.111***	0.131***	0.212***	0.121***
	(7.12)	(4.21)	(5.56)	(5.00)	(4.48)	(5.69)
Ret	-0.014	-0.019	-0.019	-0.011	-0.020	-0.019
	(-0.83)	(-1.06)	(-1.08)	(-0.85)	(-1.32)	(-1.38)
Badnews	0.011	0.014	0.007	-0.014	-0.013	-0.013
	(0.83)	(1.03)	(0.56)	(-1.17)	(-1.12)	(-1.16)
*Badnews * Ret*	-0.014	-0.021	-0.017	-0.103***	-0.098***	-0.081***
	(-0.37)	(-0.54)	(-0.45)	(-3.32)	(-2.85)	(-2.83)
Log(Size)	0.005	0.007*	0.005	0.011***	0.013***	0.011***
	(1.28)	(1.75)	(1.26)	(3.18)	(3.53)	(3.14)
Leverage	-0.076***	-0.056*	-0.067**	0.003	0.008	-0.002
	(-2.72)	(-1.95)	(-2.35)	(0.12)	(0.28)	(-0.07)
MtB	-0.002**	-0.002**	-0.002*	0.002**	0.002**	0.002**
	(-2.28)	(-2.02)	(-1.84)	(2.29)	(2.36)	(2.39)
ROA	-0.155***	-0.186***	-0.184***	-0.108***	-0.105***	-0.098**
	(-4.88)	(-5.04)	(-5.45)	(-2.67)	(-2.65)	(-2.50)
Crisis	-0.018	-0.024	-0.016	-0.006	-0.002	-0.009
	(-0.76)	(-0.91)	(-0.63)	(-0.19)	(-0.05)	(-0.28)
ΔCEO	0.007	0.010	0.009	0.014	0.011	0.013
	(0.74)	(1.06)	(0.98)	(1.44)	(1.13)	(1.36)
PrPro	-0.077***	-0.079***	-0.075***	-0.009	-0.014	-0.014
	(-3.95)	(-3.82)	(-3.72)	(-0.54)	(-0.77)	(-0.83)
IFRS	-0.015	-0.022	-0.018	-0.011	-0.017	-0.017
	(-0.77)	(-1.08)	(-0.94)	(-0.61)	(-0.92)	(-0.96)
AIM	-0.015	-0.014	-0.012	-0.014	-0.013	-0.017
	(-1.25)	(-1.14)	(-1.06)	(-0.99)	(-0.93)	(-1.24)
BigN	-0.021**	-0.021**	-0.022**	-0.017*	-0.016	-0.017*
	(-2.10)	(-1.98)	(-2.12)	(-1.69)	(-1.56)	(-1.78)
Closely Held Shares %	0.027	0.029	0.032	0.002	0.003	-0.005
	(1.24)	(1.29)	(1.43)	(0.09)	(0.11)	(-0.20)
InstOwn	0.029	0.037	0.042	-0.077***	-0.071**	-0.078***
	(0.76)	(0.97)	(1.07)	(-2.59)	(-2.22)	(-2.67)
Log(Rearend)	0.021*	0.016	0.020*	-0.002	-0.002	-0.002
	(1.87)	(1.42)	(1.71)	(-0.34)	(-0.40)	(-0.29)
Intercept	-0.730***	-0.758***	-0.750***	-0.189**	-0.202**	-0.172**
	(-3.34)	(-8.74)	(-2.77)	(-2.42)	(-2.52)	(-2.30)
*Ret + Badnews * Ret*	-0.027	-0.040	-0.036	-0.114***	-0.118***	-0.100***
	(-0.87)	(-1.23)	(-1.11)	(-4.16)	(-3.94)	(-3.96)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.563	0.516	0.524	0.692	0.668	0.729
N	1,857	1,792	1,857	1,350	1,324	1,350

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 5
Tests With Endogeneity Control

Panel A: Endogenous Switching Regression

	Lower Tercile of *PC Factor*			Upper Tercile of *PC Factor*		
	Goodwill (1)	*Goodwill_LS* (2)	*Goodwill_AFP* (3)	*Goodwill* (4)	*Goodwill_LS* (5)	*Goodwill_AFP* (6)
Goodwill	0.214***	0.183***	0.133***	0.092***	0.171***	0.094***
	(9.03)	(5.52)	(6.80)	(5.33)	(5.25)	(6.68)
Ret	-0.013	-0.018	-0.019	-0.003	-0.008	-0.008
	(-0.76)	(-0.91)	(-1.01)	(-0.25)	(-0.76)	(-0.73)
Badnews	-0.001	0.002	-0.006	-0.011	-0.011	-0.011
	(-0.03)	(0.12)	(-0.37)	(-1.13)	(-1.06)	(-1.15)
*Badnews * Ret*	-0.017	-0.028	-0.018	-0.094***	-0.081***	-0.079***
	(-0.46)	(-0.66)	(-0.47)	(-3.51)	(-2.94)	(-3.01)
*Ret + Badnews * Ret*	-0.030	-0.045	-0.037	-0.097***	-0.090***	-0.087***
	(-0.95)	(-1.12)	(-1.10)	(-4.02)	(-3.56)	(-3.68)
Intercept, Controls, and Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: The Effect of Lagged Disclosure on the Timeliness of Goodwill Impairments

	Lower Tercile of *Pred PC Factor*			Upper Tercile of *Pred PC Factor*		
	Goodwill (1)	*Goodwill_LS* (2)	*Goodwill_AFP* (3)	*Goodwill* (4)	*Goodwill_LS* (5)	*Goodwill_AFP* (6)
Goodwill	0.208***	0.201***	0.141***	0.084***	0.167***	0.085***
	(9.19)	(4.90)	(6.48)	(3.94)	(3.55)	(4.54)
Ret	-0.010	-0.016	-0.014	-0.001	-0.006	-0.005
	(-0.46)	(-0.69)	(-0.64)	(-0.10)	(-0.59)	(-0.51)
Badnews	-0.001	-0.000	-0.005	-0.007	-0.005	-0.006
	(-0.07)	(-0.02)	(-0.30)	(-0.77)	(-0.62)	(-0.77)
*Badnews * Ret*	-0.038	-0.048	-0.043	-0.071***	-0.068**	-0.058**
	(-0.88)	(-1.04)	(-0.97)	(-2.59)	(-2.27)	(-2.38)
*Ret + Badnews * Ret*	-0.048	-0.064	-0.057	-0.072***	-0.075***	-0.063***
	(-1.33)	(-1.66)	(-1.53)	(-2.87)	(-2.75)	(-2.81)
Intercept, Controls, and Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.443	0.355	0.374	0.479	0.474	0.522
N	1,577	1,516	1,577	1,606	1,569	1,606

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. Panel A presents the results from an endogenous switching regression. Parameters are estimated by simultaneous Maximum Likelihood. The number of observations for Column 1 & 4 are 3,177, Column 2 & 5 are 3,080, and Column 3 & 6 are 3,177. Panel B presents the results for regressions estimated separately for subsamples of firms based on *Pred PC Factor*. *Pred PC Factor* in this table is calculate as the predicted values from a regression of *PC Factor* on lagged *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 6
Market Reaction to Goodwill Impairments

	Full Sample	Lower Tercile of *PC Factor*	Upper Tercile of *PC Factor*	Interaction Term
	(1)	*(2)*	*(3)*	(4)
UE	0.002***	0.003**	0.002*	0.003***
	(2.76)	(2.34)	(1.74)	(3.32)
Impgdw	-0.187*	-0.288	0.287*	-0.313*
	(-1.69)	(-1.24)	(1.74)	(-1.67)
Upper Tercile Dummy				0.000
				(0.07)
*Upper Tercile Dummy * Impgdw*				0.577**
				(2.41)
Log(Size)	-0.001	-0.005	-0.002	-0.002
	(-0.63)	(-1.09)	(-0.79)	(-0.78)
Leverage	0.001	0.042	0.001	0.006
	(0.08)	(1.28)	(0.04)	(0.33)
MtB	-0.001	-0.001	-0.000	-0.000
	(-1.40)	(-0.58)	(-0.71)	(-0.26)
ROA	0.030*	-0.013	0.050*	0.014
	(1.65)	(-0.33)	(1.78)	(0.64)
Crisis	-0.002	0.026	0.014	0.015
	(-0.25)	(1.36)	(1.17)	(1.54)
ΔCEO	0.001	0.003	0.007	0.006
	(0.21)	(0.31)	(0.93)	(0.98)
PrPro	-0.018**	-0.008	-0.023	-0.018
	(-1.96)	(-0.35)	(-1.54)	(-1.48)
IFRS	-0.002	-0.017	0.000	0.009
	(-0.22)	(-0.49)	(0.02)	(0.60)
AIM	0.001	-0.005	-0.007	-0.004
	(0.22)	(-0.38)	(-0.88)	(-0.71)
BigN	-0.012**	-0.017	-0.009	-0.011*
	(-2.23)	(-1.42)	(-1.11)	(-1.82)
Closely Held Shares %	0.022	0.051	0.013	0.027
	(1.44)	(1.51)	(0.42)	(1.26)
InstOwn	0.016	-0.007	0.041**	0.022
	(1.34)	(-0.30)	(1.98)	(1.50)
Log(Rearend)	0.005*	0.007	0.006	0.007*
	(1.69)	(0.71)	(1.43)	(1.80)
Intercept	-0.032	-0.056	-0.001	-0.043
	(-1.01)	(-0.47)	(-0.02)	(-1.08)
Test of the difference of *Impgdw* coefficients.		0.563**		
		(2.28)		
Industry Effects	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes
Adj. R^2	0.046	0.105	0.033	0.059
N	2,665	657	1,066	1,723

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *PC Factor*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table 7
Other Robustness Tests

Panel A: Post-IFRS Period for H1

	Lower Tercile of *PC Factor*			Upper Tercile of *PC Factor*		
	Goodwill (1)	*Goodwill_LS* (2)	*Goodwill_AFP* (3)	*Goodwill* (4)	*Goodwill_LS* (5)	*Goodwill_AFP* (6)
Goodwill	0.183***	0.183***	0.120***	0.141***	0.195***	0.120***
	(7.19)	(3.58)	(5.23)	(4.81)	(3.70)	(5.21)
Ret	-0.002	-0.010	-0.008	-0.007	-0.013	-0.015
	(-0.12)	(-0.45)	(-0.41)	(-0.52)	(-0.80)	(-1.03)
Badnews	0.021	0.022	0.016	0.005	0.006	0.004
	(1.55)	(1.44)	(1.11)	(0.41)	(0.51)	(0.35)
*Badnews * Ret*	-0.025	-0.035	-0.034	-0.084***	-0.088***	-0.068**
	(-0.64)	(-0.81)	(-0.83)	(-2.90)	(-2.62)	(-2.46)
*Ret + Badnews * Ret*	-0.028	-0.045	-0.042	-0.091***	-0.101***	-0.083***
	(-0.85)	(-1.26)	(-1.24)	(-3.74)	(-3.61)	(-3.56)
Intercept, Controls, and Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.661	0.543	0.586	0.892	0.819	0.907
N	1,471	1,429	1,471	1,077	1,064	1,077

Panel B: Alternative Disclosure Measure for H1

	Lower Tercile of *DiscIndex*			Upper Tercile of *DiscIndex*		
	Goodwill (1)	*Goodwill_LS* (2)	*Goodwill_AFP* (3)	*Goodwill* (4)	*Goodwill_LS* (5)	*Goodwill_AFP* (6)
Goodwill	0.204***	0.203***	0.139***	0.100***	0.155***	0.084***
	(8.01)	(5.15)	(6.28)	(4.10)	(2.73)	(4.01)
Ret	0.002	-0.009	-0.008	-0.005	-0.009	-0.009
	(0.09)	(-0.46)	(-0.42)	(-0.49)	(-0.78)	(-0.85)
Badnews	0.030**	0.034**	0.025	-0.013	-0.012	-0.014*
	(1.97)	(2.12)	(1.63)	(-1.58)	(-1.41)	(-1.65)
*Badnews * Ret*	-0.033	-0.029	-0.031	-0.092***	-0.091***	-0.081***
	(-0.88)	(-0.72)	(-0.81)	(-3.49)	(-3.03)	(-3.32)
*Ret + Badnews * Ret*	-0.031	-0.038	-0.039	-0.097***	-0.100***	0.090***
	(-0.98)	(-1.11)	(-1.12)	(-4.09)	(-3.74)	(-4.09)
Intercept, Controls, and Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.536	0.492	0.493	1.230	1.145	1.224
N	1,881	1,799	1,881	1,327	1,308	1,327

Table 7 (Cont'd)
Other Robustness Tests

Panel C: Post-IFRS Period for H2		
	Lower Tercile of *PC Factor*	Upper Tercile of *PC Factor*
	(1)	*(2)*
UE	0.001	-0.000
	(1.20)	(-0.27)
Impgdw	-0.269*	0.165
	(-1.79)	(0.97)
Test of the difference of *Impgdw* coefficients.	0.433**	
	(2.00)	
Intercept, Controls, and Fixed Effects	Yes	Yes
Adj. R^2	0.190	0.074
N	772	1,045

Panel D: Alternative Disclosure Measure for H2		
	Lower Tercile of *DiscIndex*	Upper Tercile of *DiscIndex*
	(1)	(2)
UE	0.001	0.003***
	(1.02)	(3.91)
Impgdw	-0.182**	0.057
	(-2.50)	(0.45)
Test of the difference of *Impgdw* coefficients.	0.239*	
	(1.72)	
Intercept, Controls, and Fixed Effects	Yes	Yes
Adj. R^2	0.112	0.156
N	741	975

Notes: This table presents robustness test for our two hypotheses. For Panel A and B, the table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. For Panel C and D, this table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. Panel A and C presents the results using observations in the post-IFRS adoption period only. Panel B and D presents the results using an alternative disclosure measure *DiscIndex. DiscIndex* is the percentile rank of the sum of the fractional ranks of *Causal, Forward-Looking, Performance* and *Strategic* keywords and *Fog Index.* All word count variables are undeflated. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Internet Appendix for

"Narrative Disclosure Quality and the Timeliness of Goodwill Impairments"

This Internet Appendix reports results for the individual components of *PC Factor,* the first stage of the endogenous switching regression, and three additional robustness tests.

Tables IA.1 to IA.5 report separate results for the five individual components of *PC Factor* for Hypothesis 1. The results indicate that, for the low disclosure tercile, *Ret + Badnews*Ret* is rarely significant at the 5% level or lower. It is significant only at the 10% level in columns (2) and (3) of Table IA.1 and column (3) of Table IA.5. In contrast, for the high disclosure tercile, *Ret + Badnews*Ret* is negative and significant at the 1% level in all five tables. Overall, the results in Table IA.1 to Table IA.5 convey a consistent message. Companies that exhibit a high level of disclosure quality are significantly more likely to report timely impairments.

[Insert Table IA.1 – IA.5]

Tables IA.6 to IA.10 report separate results for the five components of the *PC Factor* for Hypothesis 2. In all tables, the main variable of interest, *Impgdw*, is negative and significant at least at the 10% level for the low disclosure group. A test of the difference in the *Impgdw* coefficients between the high and low disclosure subsamples is significant at least at the 10% level for all tables except in Tables IA.8 and IA.9.

[Insert Table IA.6 – IA.10]

Table IA.11 report the results for the first stage selection model of the endogenous switching regressions presented in Table 5 Panel A of the main paper.

[Insert Table IA.11]

To examine whether our results are sensitive to alternative indicators of impairment, we adapt model (1) to include changes in operating cash flows. Table IA.12 reports the results from adding changes in operating cash flows as an additional impairment indicator. As expected, the coefficient on *Ret + Badnews*Ret* and on *DOCF + Badnews_ocf * DOCF* are significant only

for the high disclosure group. Taken together, the results in Table IA.12 lend further validity to our argument that firms with high-level disclosure quality are significantly more likely to report timely impairments.

[Insert Table IA.12]

To test whether our results are robust to different deflators for our disclosure measures, we repeat our main analysis using word count measures scaled by the front-end total word count. The results in Table IA.13 indicate that our inferences are not sensitive to the choice of deflator.

[Insert Table IA.13]

Finally, Table IA.14 presents results for model (1) using firm fixed effects. The results show that, for the high disclosure tercile, *Ret + Badnews*Ret* is significant at the 10% (5%) level in column 4 (5) and not significant in column 6. *Ret + Badnews*Ret* is positive, but not significant, for the low disclosure tercile in all three columns. So, there is still a strong contrast between the results for the higher and the lower terciles.

[Insert Table IA.14]

Table IA.1
The Effect of Forward-Looking Keywords on the Timeliness of Goodwill Impairments

	Lower Tercile of *Forward-Looking keywords*			Upper Tercile of *Forward-Looking keywords*		
	Goodwill (1)	*Goodwill_LS* (2)	*Goodwill_AFP* (3)	*Goodwill* (4)	*Goodwill_LS* (5)	*Goodwill_AFP* (6)
Goodwill	0.184***	0.152***	0.129***	0.105***	0.169***	0.090***
	(8.23)	(4.21)	(6.16)	(3.59)	(3.09)	(3.66)
Ret	-0.036*	-0.042*	-0.042*	0.003	-0.003	-0.003
	(-1.67)	(-1.86)	(-1.93)	(0.22)	(-0.23)	(-0.22)
Badnews	0.000	0.002	-0.006	0.007	0.011	0.007
	(0.01)	(0.12)	(-0.42)	(0.62)	(1.00)	(0.68)
*Badnews * Ret*	-0.012	-0.024	-0.022	-0.086***	-0.082**	-0.071**
	(-0.31)	(-0.57)	(-0.54)	(-2.68)	(-2.31)	(-2.44)
Log(Size)	0.008*	0.011***	0.009**	0.011***	0.012***	0.010***
	(1.95)	(2.60)	(2.04)	(2.75)	(2.96)	(2.71)
Leverage	-0.085***	-0.063**	-0.075**	0.030	0.035	0.027
	(-2.83)	(-2.05)	(-2.44)	(1.28)	(1.49)	(1.18)
MtB	-0.001	-0.001	0.000	0.002*	0.002**	0.002**
	(-0.70)	(-0.54)	(0.29)	(1.93)	(2.18)	(2.14)
ROA	-0.149***	-0.198***	-0.181***	-0.115***	-0.124***	-0.114***
	(-4.28)	(-4.84)	(-4.85)	(-2.75)	(-2.79)	(-2.58)
Crisis	0.014	0.011	0.017	0.017	0.020	0.015
	(0.53)	(0.36)	(0.59)	(0.42)	(0.50)	(0.35)
ΔCEO	0.012	0.016	0.015	0.003	-0.000	0.001
	(1.16)	(1.53)	(1.45)	(0.28)	(-0.05)	(0.16)
PrPro	-0.063***	-0.064***	-0.058***	-0.032*	-0.037*	-0.037**
	(-3.05)	(-2.96)	(-2.73)	(-1.75)	(-1.94)	(-1.99)
IFRS	-0.024	-0.032	-0.025	0.003	-0.001	-0.003
	(-1.18)	(-1.54)	(-1.26)	(0.16)	(-0.03)	(-0.13)
AIM	-0.013	-0.012	-0.011	-0.007	-0.007	-0.009
	(-1.02)	(-0.89)	(-0.84)	(-0.54)	(-0.48)	(-0.70)
BigN	-0.022**	-0.025**	-0.023**	-0.011	-0.011	-0.013
	(-1.99)	(-2.16)	(-2.04)	(-1.19)	(-1.20)	(-1.33)
Closely Held Shares %	0.031	0.034	0.032	-0.007	-0.008	-0.012
	(1.38)	(1.48)	(1.39)	(-0.29)	(-0.33)	(-0.49)
InstOwn	0.047	0.063	0.060	-0.076**	-0.073**	-0.080**
	(1.16)	(1.55)	(1.46)	(-2.42)	(-2.25)	(-2.54)
Log(Rearend)	0.016	0.007	0.011	-0.004	-0.004	-0.004
	(1.40)	(0.57)	(1.00)	(-0.77)	(-0.77)	(-0.76)
Intercept	-0.789	-0.771***	-0.759**	-0.194**	-0.201**	-0.175**
	(-1.57)	(-5.08)	(-2.49)	(-2.41)	(-2.48)	(-2.24)
*Ret + Badnews * Ret*	-0.048	-0.066*	-0.064*	-0.083***	-0.085***	-0.04***
	(-1.48)	(-1.92)	(-1.93)	(-2.81)	(-2.68)	(-2.80)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.560	0.490	0.520	0.674	0.649	0.676
N	1,865	1,792	1,865	1,362	1,334	1,362

Notes: This table presents the tobit estimation results of the effect of forward-looking keywords on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *Forward-Looking keywords*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.2
The Effect of Causal Keywords on the Timeliness of Goodwill Impairments

	Lower Tercile of *Causal keywords*			Upper Tercile of *Causal keywords*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Goodwill	0.166***	0.181***	0.112***	0.140***	0.198***	0.119***
	(7.37)	(4.38)	(5.70)	(5.17)	(4.13)	(5.31)
Ret	-0.005	-0.012	-0.011	-0.016	-0.022	-0.023
	(-0.30)	(-0.67)	(-0.63)	(-1.22)	(-1.48)	(-1.64)
Badnews	0.015	0.018	0.012	-0.020*	-0.017	-0.021*
	(1.11)	(1.33)	(0.94)	(-1.81)	(-1.45)	(-1.89)
*Badnews * Ret*	-0.008	-0.010	-0.005	-0.091***	-0.094**	-0.075**
	(-0.23)	(-0.27)	(-0.13)	(-2.79)	(-2.49)	(-2.41)
Log(Size)	0.005	0.006	0.005	0.010**	0.011***	0.009**
	(1.08)	(1.49)	(1.15)	(2.53)	(2.66)	(2.43)
Leverage	-0.066**	-0.046*	-0.055**	0.001	-0.003	0.000
	(-2.51)	(-1.69)	(-2.07)	(0.02)	(-0.12)	(0.01)
MtB	-0.002**	-0.002**	-0.002*	0.002*	0.002	0.002*
	(-2.43)	(-1.97)	(-1.91)	(1.67)	(1.64)	(1.77)
ROA	-0.165***	-0.200***	-0.200***	-0.118***	-0.115***	-0.112***
	(-5.15)	(-5.25)	(-5.78)	(-2.72)	(-2.70)	(-2.61)
Crisis	0.011	0.009	0.020	0.014	0.025	0.012
	(0.43)	(0.28)	(0.65)	(0.49)	(0.84)	(0.43)
ΔCEO	0.011	0.013	0.013	0.020**	0.018*	0.019**
	(1.20)	(1.42)	(1.40)	(2.13)	(1.80)	(1.97)
PrPro	-0.088***	-0.092***	-0.087***	-0.007	-0.016	-0.011
	(-4.31)	(-4.34)	(-4.17)	(-0.37)	(-0.84)	(-0.57)
IFRS	-0.018	-0.027	-0.022	-0.003	-0.009	-0.008
	(-0.89)	(-1.35)	(-1.10)	(-0.18)	(-0.50)	(-0.48)
AIM	-0.007	-0.004	-0.004	-0.017	-0.016	-0.019
	(-0.56)	(-0.31)	(-0.35)	(-1.18)	(-1.06)	(-1.36)
BigN	-0.029***	-0.027**	-0.030***	-0.019*	-0.019*	-0.018*
	(-2.79)	(-2.55)	(-2.88)	(-1.89)	(-1.81)	(-1.84)
Closely Held Shares %	0.021	0.022	0.027	0.002	0.001	-0.002
	(0.92)	(0.91)	(1.19)	(0.08)	(0.06)	(-0.10)
InstOwn	0.031	0.044	0.047	-0.038	-0.035	-0.040
	(0.76)	(1.11)	(1.17)	(-1.22)	(-1.01)	(-1.29)
Log(Rearend)	0.029***	0.023**	0.026**	0.000	-0.000	0.001
	(2.58)	(2.00)	(2.22)	(0.03)	(-0.04)	(0.12)
Intercept	-0.796***	-0.800***	-0.826	-0.202**	-0.201**	-0.188**
	(-32.86)	(-14.22)	(-0.44)	(-2.39)	(-2.35)	(-2.27)
*Ret + Badnews * Ret*	-0.013	-0.023	-0.015	-0.107***	-0.116***	-0.098***
	(-0.43)	(-0.71)	(-0.49)	(-3.72)	(-3.55)	(-3.57)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.555	0.512	0.507	0.646	0.584	0.646
N	1,858	1,789	1,858	1,347	1,319	1,347

Notes: This table presents the tobit estimation results of the effect of casual keywords on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *Causal keywords*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.3
The Effect of Strategic Keywords on the Timeliness of Goodwill Impairments

	Lower Tercile of *Strategic keywords*			Upper Tercile of *Strategic keywords*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Goodwill	0.177***	0.186***	0.131***	0.098***	0.215***	0.095***
	(7.25)	(4.16)	(5.98)	(3.86)	(4.20)	(4.28)
Ret	0.002	-0.005	-0.000	0.002	-0.004	-0.003
	(0.10)	(-0.26)	(-0.03)	(0.14)	(-0.32)	(-0.26)
Badnews	0.019	0.023	0.017	-0.020*	-0.017	-0.020*
	(1.39)	(1.60)	(1.21)	(-1.80)	(-1.51)	(-1.84)
*Badnews * Ret*	-0.030	-0.039	-0.032	-0.127***	-0.119***	-0.115***
	(-0.84)	(-1.03)	(-0.91)	(-4.09)	(-3.52)	(-3.97)
Log(Size)	0.005	0.007*	0.004	0.011***	0.012***	0.010***
	(1.16)	(1.74)	(0.97)	(3.08)	(3.38)	(3.04)
Leverage	-0.044	-0.022	-0.030	-0.020	-0.014	-0.023
	(-1.52)	(-0.74)	(-1.05)	(-0.81)	(-0.54)	(-0.95)
MtB	-0.003**	-0.002**	-0.002*	0.001	0.002	0.002
	(-2.47)	(-2.05)	(-1.90)	(1.22)	(1.64)	(1.54)
ROA	-0.162***	-0.201***	-0.191***	-0.061	-0.067*	-0.066*
	(-4.33)	(-4.59)	(-4.89)	(-1.59)	(-1.77)	(-1.74)
Crisis	-0.025	-0.030	-0.022	0.015	0.028	0.013
	(-0.94)	(-0.94)	(-0.75)	(0.54)	(1.00)	(0.47)
ΔCEO	0.010	0.012	0.013	0.010	0.007	0.010
	(1.05)	(1.17)	(1.33)	(1.16)	(0.84)	(1.21)
PrPro	-0.093***	-0.094***	-0.087***	-0.030*	-0.029*	-0.032*
	(-4.57)	(-4.40)	(-4.20)	(-1.76)	(-1.74)	(-1.93)
IFRS	-0.016	-0.027	-0.020	0.004	-0.003	-0.000
	(-0.76)	(-1.25)	(-0.98)	(0.21)	(-0.13)	(-0.02)
AIM	-0.011	-0.011	-0.010	0.000	0.002	-0.002
	(-0.97)	(-0.93)	(-0.86)	(0.03)	(0.20)	(-0.16)
BigN	-0.029***	-0.029***	-0.029***	-0.014	-0.012	-0.014
	(-2.67)	(-2.61)	(-2.66)	(-1.52)	(-1.32)	(-1.53)
Closely Held Shares %	0.027	0.032	0.031	0.015	0.014	0.010
	(1.18)	(1.36)	(1.34)	(0.66)	(0.61)	(0.47)
InstOwn	0.031	0.045	0.043	-0.054*	-0.038	-0.052*
	(0.76)	(1.16)	(1.07)	(-1.84)	(-1.32)	(-1.80)
Log(Rearend)	0.016	0.012	0.017	-0.002	-0.003	-0.002
	(1.34)	(0.95)	(1.34)	(-0.48)	(-0.53)	(-0.47)
Intercept	-0.737*	-0.758***	-0.752	-0.178**	-0.185**	-0.162**
	(-1.76)	(-4.86)	(-1.05)	(-2.39)	(-2.56)	(-2.24)
*Ret + Badnews * Ret*	-0.028	-0.044	-0.033	-0.126***	-0.123***	-0.118***
	(-0.91)	(-1.37)	(-1.07)	(-4.48)	(-4.10)	(-4.44)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.529	0.492	0.504	0.673	0.698	0.701
N	1,868	1,802	1,868	1,366	1,334	1,366

Notes: This table presents the tobit estimation results of the effect of strategic keywords on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *Strategic keywords.* Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.4
The Effect of Performance Keywords on the Timeliness of Goodwill Impairments

	Lower Tercile of *Performance keywords*			Upper Tercile of *Performance keywords*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Goodwill	0.162***	0.165***	0.117***	0.142***	0.195***	0.135***
	(7.39)	(4.44)	(5.94)	(5.37)	(4.41)	(5.96)
Ret	-0.002	-0.009	-0.008	-0.008	-0.014	-0.011
	(-0.14)	(-0.53)	(-0.47)	(-0.54)	(-0.93)	(-0.77)
Badnews	0.010	0.013	0.007	-0.014	-0.014	-0.015
	(0.79)	(0.94)	(0.53)	(-1.09)	(-1.06)	(-1.19)
*Badnews * Ret*	-0.025	-0.032	-0.027	-0.120***	-0.113***	-0.115***
	(-0.72)	(-0.87)	(-0.77)	(-3.57)	(-3.00)	(-3.58)
Log(Size)	0.009**	0.012***	0.010**	0.009**	0.010**	0.009**
	(2.29)	(2.83)	(2.39)	(2.52)	(2.54)	(2.45)
Leverage	-0.048*	-0.030	-0.041	0.016	0.021	0.012
	(-1.87)	(-1.12)	(-1.58)	(0.55)	(0.72)	(0.42)
MtB	-0.002*	-0.001	-0.001	0.001	0.001	0.002
	(-1.91)	(-1.53)	(-1.07)	(1.31)	(1.31)	(1.56)
ROA	-0.152***	-0.187***	-0.180***	-0.076*	-0.082*	-0.068
	(-4.72)	(-4.98)	(-5.19)	(-1.70)	(-1.79)	(-1.50)
Crisis	-0.012	-0.016	-0.007	-0.018	-0.010	-0.021
	(-0.47)	(-0.56)	(-0.24)	(-0.54)	(-0.29)	(-0.64)
ΔCEO	0.006	0.008	0.007	0.024**	0.021*	0.023**
	(0.55)	(0.81)	(0.74)	(2.21)	(1.89)	(2.13)
PrPro	-0.084***	-0.087***	-0.083***	-0.024	-0.029	-0.022
	(-4.27)	(-4.21)	(-4.14)	(-1.26)	(-1.44)	(-1.16)
IFRS	-0.004	-0.014	-0.008	-0.008	-0.017	-0.010
	(-0.22)	(-0.69)	(-0.41)	(-0.42)	(-0.85)	(-0.53)
AIM	0.005	0.009	0.008	-0.007	-0.003	-0.009
	(0.38)	(0.69)	(0.60)	(-0.52)	(-0.24)	(-0.71)
BigN	-0.027***	-0.026**	-0.028***	-0.019*	-0.019*	-0.018*
	(-2.61)	(-2.48)	(-2.67)	(-1.75)	(-1.70)	(-1.79)
Closely Held Shares %	0.015	0.017	0.017	-0.003	0.000	-0.012
	(0.67)	(0.71)	(0.73)	(-0.12)	(0.01)	(-0.45)
InstOwn	0.001	0.018	0.011	-0.031	-0.017	-0.031
	(0.03)	(0.48)	(0.29)	(-0.91)	(-0.47)	(-0.92)
Log(Rearend)	0.021**	0.016	0.018*	-0.000	0.000	-0.000
	(2.03)	(1.46)	(1.67)	(-0.07)	(0.01)	(-0.07)
Intercept	-0.830	-0.834	-0.825	-0.200**	-0.209**	-0.193**
	(-0.69)	(-0.63)	(-0.92)	(-2.37)	(-2.40)	(-2.34)
*Ret + Badnews * Ret*	-0.027	-0.041	-0.035	-0.127***	-0.128***	-0.125***
	(-0.93)	(-1.32)	(-1.14)	(-4.28)	(-3.85)	(-4.41)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.573	0.527	0.537	0.603	0.572	0.630
N	1,863	1,787	1,863	1,358	1,327	1,358

Notes: This table presents the tobit estimation results of the effect of performance keywords on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *Performance keywords*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.5
The Effect of Fog Index on Timeliness of Goodwill Impairments

	Upper Tercile of *Fog Index*			Lower Tercile of *Fog Index*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Goodwill	0.154***	0.204***	0.106***	0.146***	0.184***	0.129***
	(6.46)	(4.48)	(5.40)	(5.34)	(3.74)	(5.35)
Ret	-0.014	-0.023	-0.020	-0.008	-0.014	-0.011
	(-0.88)	(-1.37)	(-1.20)	(-0.44)	(-0.72)	(-0.61)
Badnews	-0.007	-0.003	-0.010	-0.006	-0.009	-0.008
	(-0.64)	(-0.30)	(-0.83)	(-0.38)	(-0.59)	(-0.57)
*Badnews * Ret*	-0.021	-0.010	-0.022	-0.094**	-0.101**	-0.093**
	(-0.65)	(-0.28)	(-0.67)	(-2.39)	(-2.44)	(-2.30)
Log(Size)	0.005*	0.006*	0.006**	0.000	0.002	-0.001
	(1.70)	(1.79)	(2.00)	(0.08)	(0.39)	(-0.29)
Leverage	-0.011	0.008	-0.014	-0.018	-0.003	-0.009
	(-0.44)	(0.35)	(-0.55)	(-0.55)	(-0.10)	(-0.28)
MtB	-0.000	-0.000	0.000	-0.001	-0.001	-0.000
	(-0.24)	(-0.31)	(0.22)	(-1.33)	(-1.00)	(-0.45)
ROA	-0.158***	-0.178***	-0.173***	-0.029	-0.073	-0.053
	(-4.85)	(-4.77)	(-5.09)	(-0.63)	(-1.46)	(-1.13)
Crisis	-0.013	-0.020	-0.020	0.040	0.043	0.048
	(-0.46)	(-0.62)	(-0.65)	(1.09)	(0.94)	(1.18)
ΔCEO	0.030***	0.031***	0.031***	0.013	0.012	0.013
	(3.59)	(3.62)	(3.63)	(1.24)	(1.06)	(1.17)
PrPro	-0.052***	-0.051***	-0.049***	-0.098***	-0.098***	-0.098***
	(-2.92)	(-2.74)	(-2.65)	(-4.11)	(-4.12)	(-4.17)
IFRS	0.009	0.006	0.008	-0.036	-0.047*	-0.038*
	(0.52)	(0.32)	(0.43)	(-1.56)	(-1.96)	(-1.74)
AIM	-0.020*	-0.016	-0.017	0.002	0.005	-0.002
	(-1.74)	(-1.34)	(-1.43)	(0.16)	(0.34)	(-0.13)
BigN	-0.024***	-0.023**	-0.024***	-0.011	-0.012	-0.009
	(-2.64)	(-2.56)	(-2.74)	(-0.87)	(-0.98)	(-0.71)
Closely Held Shares %	0.009	0.009	0.009	-0.055*	-0.049*	-0.062**
	(0.49)	(0.44)	(0.48)	(-1.94)	(-1.66)	(-2.17)
InstOwn	-0.005	0.011	0.001	0.002	0.016	0.005
	(-0.15)	(0.37)	(0.02)	(0.05)	(0.40)	(0.14)
Log(Rearend)	0.010	0.010	0.007	0.004	0.003	0.004
	(1.07)	(1.05)	(0.74)	(0.65)	(0.40)	(0.56)
Intercept	-0.599	-0.635	-0.581***	-0.108	-0.114	-0.074
	(-1.41)	(-0.74)	(-7.02)	(-1.16)	(-1.20)	(-0.83)
*Ret + Badnews * Ret*	-0.035	-0.033	-0.042	-0.102***	-0.116***	-0.104***
	(-1.30)	(-1.19)	(-1.56)	(-3.01)	(-3.27)	(-2.97)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.672	0.632	0.626	0.482	0.432	0.480
N	1,874	1,826	1,874	1,357	1,317	1,357

Notes: This table presents the tobit estimation results of the effect of Fog Index on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *Fog Index*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.6
Market Reaction to Goodwill Impairments for Forward-Looking Keywords

	Lower Tercile of *Forward-Looking keywords* *(1)*	Upper Tercile of *Forward-Looking keywords* *(2)*
UE	0.002	0.001
	(1.10)	(1.14)
Impgdw	-0.489***	0.094
	(-2.84)	(0.35)
Log(Size)	0.001	-0.001
	(0.20)	(-0.61)
Leverage	0.016	-0.005
	(0.55)	(-0.26)
MtB	0.000	-0.000
	(0.01)	(-0.93)
ROA	-0.032	0.015
	(-1.09)	(0.59)
Crisis	0.007	0.008
	(0.28)	(0.45)
ΔCEO	-0.003	-0.004
	(-0.34)	(-0.57)
PrPro	0.015	-0.021*
	(0.71)	(-1.69)
IFRS	-0.025	0.034**
	(-1.20)	(2.50)
AIM	0.002	-0.008
	(0.18)	(-1.30)
BigN	-0.024**	-0.006
	(-2.54)	(-0.76)
Closely Held Shares %	0.006	0.020
	(0.28)	(1.08)
InstOwn	0.046	0.002
	(1.45)	(0.06)
Log(Rearend)	0.006	0.006*
	(0.62)	(1.79)
Intercept	-0.145	-0.014
	(-1.42)	(-0.37)
Test of the difference between the Upper and Lower *Impgdw* coefficients.	0.583* (1.91)	
Industry Effects	Yes	Yes
Year Effects	Yes	Yes
Adj. R^2	640	1,114
N	0.055	0.040

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *Forward-Looking keywords*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.7
Market Reaction to Goodwill Impairments for Causal Keywords

	Lower Tercile of *Causal keywords* *(1)*	Upper Tercile of *Causal keywords* *(2)*
UE	0.002*	0.002**
	(1.73)	(2.30)
Impgdw	-0.304*	0.196
	(-1.83)	(1.18)
Log(Size)	-0.003	0.000
	(-0.95)	(0.12)
Leverage	0.016	-0.024
	(0.70)	(-1.23)
MtB	0.000	-0.000
	(0.02)	(-0.94)
ROA	-0.037	0.035
	(-1.17)	(1.34)
Crisis	-0.018	0.007
	(-0.85)	(0.40)
ΔCEO	-0.000	0.001
	(-0.05)	(0.17)
PrPro	-0.002	-0.021
	(-0.14)	(-1.58)
IFRS	0.037	0.008
	(1.54)	(0.66)
AIM	0.004	-0.006
	(0.43)	(-1.00)
BigN	-0.023**	-0.003
	(-2.35)	(-0.42)
Closely Held Shares %	-0.003	0.030*
	(-0.16)	(1.67)
InstOwn	0.000	0.013
	(0.01)	(0.49)
Log(Rearend)	0.016**	0.006
	(1.97)	(1.55)
Intercept	-0.157*	-0.020
	(-1.72)	(-0.50)
Test of the difference between the Upper and Lower *Impgdw* coefficients.	0.500** (2.25)	
Industry Effects	Yes	Yes
Year Effects	Yes	Yes
Adj. R^2	712	1,019
N	0.070	0.037

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *Causal keywords*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.8
Market Reaction to Goodwill Impairments for Strategic Keywords

	Lower Tercile of *Strategic keywords* *(1)*	Upper Tercile of *Strategic keywords* *(2)*
UE	0.003**	0.003**
	(2.57)	(2.23)
Impgdw	-0.260*	-0.013
	(-1.76)	(-0.06)
Log(Size)	-0.001	-0.001
	(-0.23)	(-0.24)
Leverage	0.014	-0.011
	(0.51)	(-0.56)
MtB	-0.002	-0.000
	(-1.61)	(-0.49)
ROA	-0.032	0.025
	(-0.90)	(0.97)
Crisis	0.007	0.004
	(0.25)	(0.24)
ΔCEO	0.009	-0.007
	(0.89)	(-0.82)
PrPro	0.001	-0.006
	(0.05)	(-0.46)
IFRS	0.002	0.021*
	(0.09)	(1.67)
AIM	-0.010	-0.006
	(-1.05)	(-1.13)
BigN	-0.006	-0.005
	(-0.60)	(-0.75)
Closely Held Shares %	0.022	0.008
	(0.91)	(0.48)
InstOwn	0.031	0.004
	(0.79)	(0.17)
Log(Rearend)	0.009	0.006*
	(0.96)	(1.67)
Intercept	-0.183*	-0.018
	(-1.90)	(-0.45)
Test of the difference between the Upper and Lower *Impgdw* coefficients.	0.247 (0.93)	
Industry Effects	Yes	Yes
Year Effects	Yes	Yes
Adj. R^2	625	1,096
N	0.031	0.042

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *Strategic keywords*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.9
Market Reaction to Goodwill Impairments for Performance Keywords

	Lower Tercile of *Performance keywords* *(1)*	Upper Tercile of *Performance keywords* *(2)*
UE	0.001	0.003***
	(0.71)	(2.71)
Impgdw	-0.387**	-0.097
	(-2.13)	(-0.70)
Log(Size)	-0.003	-0.001
	(-0.82)	(-0.58)
Leverage	0.009	0.007
	(0.39)	(0.39)
MtB	-0.001	-0.000
	(-0.62)	(-0.49)
ROA	-0.013	0.004
	(-0.45)	(0.11)
Crisis	-0.009	0.023
	(-0.41)	(1.34)
ΔCEO	-0.007	0.006
	(-0.75)	(0.77)
PrPro	-0.002	-0.031**
	(-0.11)	(-2.35)
IFRS	0.016	0.016
	(0.68)	(1.28)
AIM	0.010	-0.003
	(1.18)	(-0.44)
BigN	-0.032***	-0.011
	(-3.17)	(-1.44)
Closely Held Shares %	0.004	0.033*
	(0.21)	(1.71)
InstOwn	0.007	0.001
	(0.24)	(0.06)
Log(Rearend)	0.016*	0.003
	(1.92)	(0.61)
Intercept	-0.120	0.039
	(-1.39)	(0.92)
Test of the difference between the Upper and Lower *Impgdw* coefficients.	0.290 (1.34)	
Industry Effects	Yes	Yes
Year Effects	Yes	Yes
Adj. R^2	762	1,005
N	0.072	0.007

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *Performance keywords*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.10
Market Reaction to Goodwill Impairments for Fog Index

	Lower Tercile of *Fog Index* *(1)*	Upper Tercile of *Fog Index* *(2)*
UE	0.002**	0.001
	(2.16)	(1.02)
Impgdw	-0.075	-0.464***
	(-0.54)	(-3.00)
Log(Size)	-0.005*	-0.001
	(-1.93)	(-0.40)
Leverage	0.008	-0.001
	(0.40)	(-0.02)
MtB	-0.000	0.000
	(-0.07)	(0.48)
ROA	0.009	0.016
	(0.30)	(0.54)
Crisis	0.014	0.019
	(0.60)	(1.01)
ΔCEO	-0.010	0.015*
	(-1.21)	(1.70)
PrPro	-0.008	0.009
	(-0.66)	(0.59)
IFRS	0.004	-0.004
	(0.24)	(-0.23)
AIM	0.005	0.000
	(0.76)	(0.03)
BigN	0.000	-0.005
	(0.02)	(-0.55)
Closely Held Shares %	0.008	-0.006
	(0.48)	(-0.31)
InstOwn	0.006	0.019
	(0.27)	(0.65)
Log(Rearend)	0.013	0.001
	(1.60)	(0.37)
Intercept	-0.059	-0.020
	(-0.76)	(-0.43)
Test of the difference between the Upper and Lower *Impgdw* coefficients.	-0.388** (-1.96)	
Industry Effects	Yes	Yes
Year Effects	Yes	Yes
Adj. R^2	867	841
N	0.013	0.024

Notes: This table presents the OLS estimation results of CAR on unexpected earnings and contemporaneous drivers of impairments. The dependent variable is *CAR*. The regressions are estimated separately for subsamples of firms based on *Fog Index*. t-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.11
Estimates for the Selection Model of the Endogenous Switching Regression

	Goodwill	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*
Ret	0.009	0.077*	0.007
	(0.16)	(1.69)	(0.13)
Badnews	0.045	0.129*	0.050
	(0.63)	(1.83)	(0.73)
*Badnews * Ret*	-0.119	0.270	-0.119
	(-0.47)	(1.14)	(-0.48)
Log(Size)	0.155***	0.108***	0.146***
	(5.53)	(5.25)	(4.81)
Leverage	-0.436**	0.223*	-0.423**
	(-2.39)	(1.90)	(-2.40)
MtB	0.005	0.004	0.004
	(1.01)	(1.10)	(0.75)
ROA	0.094	0.954***	0.082
	(0.42)	(4.38)	(0.36)
Crisis	-0.090	-0.156**	-0.101
	(-1.42)	(-2.20)	(-1.62)
ΔCEO	0.037	-0.046	0.035
	(0.55)	(-0.87)	(0.53)
PrPro	-0.527***	-0.453***	-0.536***
	(-4.08)	(-4.32)	(-4.11)
IFRS	-0.174**	0.214***	-0.163**
	(-2.43)	(3.24)	(-2.23)
AIM	-0.212***	-0.179***	-0.201***
	(-2.87)	(-3.10)	(-2.73)
BigN	0.270***	0.302***	0.263***
	(4.49)	(6.14)	(4.42)
Closely Held Shares %	-0.436***	-0.434***	-0.457***
	(-2.96)	(-3.41)	(-3.09)
InstOwn	0.412*	-0.056	0.407*
	(1.93)	(-0.31)	(1.90)
Log(Frontend)	-0.882***	-0.984***	-0.887***
	(-8.45)	(-12.16)	(-7.56)
Factor1_median	0.385***	0.160**	0.440***
	(3.55)	(2.44)	(2.77)
Intercept	6.909***	8.620***	7.092***
	(7.89)	(11.97)	(7.26)
N	3,177	3,080	3,177

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The word count variables are scaled by the total word count from the front-end of the annual report. The regressions are estimated separately for subsamples of firms based on *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.12
Alternative Indicator of Goodwill Impairments

	Upper Tercile of *PC Factor*			Lower Tercile of *PC Factor*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	(2)	(3)	(4)	(5)	(6)
Goodwill	0.165***	0.162***	0.113***	0.135***	0.216***	0.124***
	(7.15)	(4.29)	(5.46)	(5.13)	(4.55)	(5.86)
Ret	-0.013	-0.019	-0.018	-0.008	-0.017	-0.017
	(-0.78)	(-1.01)	(-1.02)	(-0.62)	(-1.17)	(-1.21)
Badnews	0.012	0.015	0.008	-0.014	-0.013	-0.014
	(0.89)	(1.06)	(0.62)	(-1.24)	(-1.16)	(-1.24)
*Badnews * Ret*	-0.012	-0.019	-0.017	-0.105***	-0.099***	-0.082***
	(-0.33)	(-0.49)	(-0.45)	(-3.42)	(-2.92)	(-2.90)
DOCF	0.083	0.002	0.075	-0.037	-0.044	-0.024
	(0.97)	(0.02)	(0.89)	(-0.43)	(-0.55)	(-0.31)
Badnews_OCF	0.008	0.005	0.008	0.006	0.005	0.005
	(0.80)	(0.47)	(0.75)	(0.71)	(0.53)	(0.62)
*Badnews_OCF * DOCF*	-0.175	-0.087	-0.131	-0.098	-0.089	-0.113
	(-1.31)	(-0.63)	(-0.97)	(-0.81)	(-0.74)	(-1.00)
Log(Size)	0.006	0.007*	0.006	0.011***	0.012***	0.010***
	(1.50)	(1.71)	(1.42)	(3.13)	(3.46)	(3.13)
Leverage	-0.073***	-0.051*	-0.064**	0.010	0.016	0.004
	(-2.62)	(-1.78)	(-2.27)	(0.37)	(0.57)	(0.16)
MtB	-0.002**	-0.002**	-0.002*	0.002**	0.002**	0.002**
	(-2.29)	(-2.06)	(-1.84)	(2.35)	(2.42)	(2.42)
ROA	-0.146***	-0.177***	-0.179***	-0.091**	-0.091**	-0.082**
	(-4.69)	(-4.74)	(-5.20)	(-2.24)	(-2.31)	(-2.09)
Crisis	-0.018	-0.026	-0.016	-0.008	-0.003	-0.011
	(-0.76)	(-1.00)	(-0.61)	(-0.25)	(-0.07)	(-0.34)
ΔCEO	0.007	0.010	0.009	0.014	0.011	0.013
	(0.72)	(1.09)	(0.98)	(1.52)	(1.21)	(1.44)
PrPro	-0.080***	-0.080***	-0.077***	-0.011	-0.016	-0.016
	(-4.03)	(-3.82)	(-3.77)	(-0.63)	(-0.88)	(-0.93)
IFRS	-0.016	-0.024	-0.019	-0.013	-0.019	-0.019
	(-0.82)	(-1.16)	(-0.98)	(-0.71)	(-1.02)	(-1.06)
AIM	-0.015	-0.015	-0.013	-0.014	-0.014	-0.017
	(-1.32)	(-1.23)	(-1.11)	(-1.01)	(-1.00)	(-1.25)
BigN	-0.020*	-0.019*	-0.021**	-0.016	-0.016	-0.016*
	(-1.92)	(-1.79)	(-1.97)	(-1.64)	(-1.54)	(-1.70)
Closely Held Shares %	0.029	0.031	0.034	-0.000	0.000	-0.008
	(1.34)	(1.37)	(1.53)	(-0.01)	(0.01)	(-0.32)
InstOwn	0.034	0.040	0.046	-0.074**	-0.070**	-0.075**
	(0.86)	(1.04)	(1.17)	(-2.49)	(-2.17)	(-2.57)
Log(Rearend)	0.020*	0.016	0.019*	-0.001	-0.002	-0.001
	(1.81)	(1.39)	(1.65)	(-0.23)	(-0.32)	(-0.18)
Intercept	-0.747***	-0.755***	-0.773	-0.198**	-0.207**	-0.182**
	(-3.16)	(-4.50)	(-0.93)	(-2.51)	(-2.56)	(-2.43)
*Ret + Badnews * Ret*	-0.025	-0.038	-0.034	-0.113***	-0.117***	-0.099***
	(-0.81)	(-1.16)	(-1.07)	(-4.12)	(-3.97)	(-3.98)
*DOCF + Badnews_ocf * DOCF*	-0.092	-0.085	-0.056	-0.135*	-0.134*	-0.137*
	(-1.07)	(-0.88)	(-0.65)	(-1.76)	(-1.67)	(-1.81)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes

Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.567	0.518	0.525	0.715	0.689	0.751
N	1,854	1,789	1,854	1,348	1,322	1,348

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. *DOCF* is the firm's change in operating cash flows divided by opening total assets. *Badnews_ocf* is an indicator variable equal to one if *DOCF* is negative, and zero otherwise. The regressions are estimated separately for subsamples of firms based on *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.13
Robustness Test Using Front-End Word Count as Deflator

	Lower Tercile of *PC Factor*			Upper Tercile of *PC Factor*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Goodwill	0.142***	0.179***	0.111***	0.151***	0.190***	0.144***
	(7.04)	(4.35)	(6.34)	(5.60)	(4.47)	(6.24)
Ret	0.006	-0.003	0.003	-0.024	-0.032*	-0.029*
	(0.47)	(-0.23)	(0.22)	(-1.52)	(-1.93)	(-1.76)
Badnews	0.012	0.017	0.011	-0.027*	-0.029*	-0.031**
	(1.12)	(1.40)	(0.93)	(-1.85)	(-1.93)	(-2.09)
*Badnews * Ret*	-0.038	-0.034	-0.035	-0.109***	-0.102**	-0.110***
	(-1.27)	(-1.02)	(-1.19)	(-2.81)	(-2.52)	(-2.81)
Log(Size)	0.015***	0.018***	0.014***	0.004	0.004	0.003
	(4.34)	(4.64)	(4.24)	(1.16)	(0.96)	(0.91)
Leverage	-0.040	-0.023	-0.038	0.021	0.034	0.018
	(-1.56)	(-0.86)	(-1.48)	(0.73)	(1.10)	(0.62)
MtB	-0.002**	-0.001	-0.001	0.002**	0.002**	0.002***
	(-2.23)	(-1.58)	(-1.23)	(2.08)	(1.99)	(2.80)
ROA	-0.149***	-0.205***	-0.167***	-0.115**	-0.135***	-0.137***
	(-4.66)	(-5.04)	(-4.45)	(-2.48)	(-2.88)	(-2.90)
Crisis	-0.004	-0.005	0.009	-0.001	0.006	-0.004
	(-0.15)	(-0.16)	(0.31)	(-0.05)	(0.24)	(-0.16)
ΔCEO	0.016**	0.017**	0.017**	0.015	0.016	0.016
	(2.03)	(2.08)	(2.15)	(1.33)	(1.37)	(1.36)
PrPro	-0.079***	-0.090***	-0.081***	-0.047**	-0.052**	-0.043*
	(-4.82)	(-5.05)	(-4.76)	(-2.02)	(-2.22)	(-1.88)
IFRS	-0.019	-0.025	-0.023	0.000	-0.004	0.001
	(-1.18)	(-1.44)	(-1.42)	(0.00)	(-0.17)	(0.02)
AIM	-0.001	0.000	0.001	-0.023*	-0.024*	-0.025*
	(-0.05)	(0.04)	(0.06)	(-1.72)	(-1.77)	(-1.93)
BigN	-0.001	-0.002	0.000	-0.022*	-0.019	-0.019*
	(-0.08)	(-0.18)	(0.00)	(-1.88)	(-1.64)	(-1.70)
Closely Held Shares %	0.050**	0.057***	0.049**	-0.025	-0.021	-0.030
	(2.48)	(2.63)	(2.33)	(-0.97)	(-0.80)	(-1.19)
InstOwn	-0.003	0.021	-0.005	-0.049	-0.028	-0.048
	(-0.10)	(0.65)	(-0.15)	(-1.38)	(-0.78)	(-1.38)
Log(Frontend)	-0.008	-0.013*	-0.007	0.012*	0.011*	0.011*
	(-1.11)	(-1.70)	(-0.95)	(1.73)	(1.69)	(1.74)
Intercept	-0.207**	-0.230***	-0.218**	-0.192**	-0.173**	-0.176**
	(-2.46)	(-2.66)	(-2.56)	(-2.34)	(-2.14)	(-2.18)
*Ret + Badnews * Ret*	-0.032	-0.037	-0.032	-0.133***	-0.135***	-0.139***
	(-1.24)	(-1.30)	(-1.26)	(-3.88)	(-3.75)	(-4.01)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	0.537	0.476	0.509	0.380	0.330	0.396
N	1,875	1,823	1,875	1,353	1,313	1,353

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The word count variables are scaled by the total word count from the front-end of the annual report. The regressions are estimated separately for subsamples of firms based on *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).

Table IA.14
The Effect of Disclosure on the Timeliness of Goodwill Impairments using Firm Fixed Effects

	Lower Tercile of *PC Factor*			Upper Tercile of *PC Factor*		
	Goodwill	*Goodwill_LS*	*Goodwill_AFP*	*Goodwill*	*Goodwill_LS*	*Goodwill_AFP*
	(1)	(2)	(3)	(4)	(5)	(6)
Goodwill	0.309***	0.175***	0.138***	0.233***	0.213***	0.206***
	(7.40)	(3.26)	(4.29)	(5.00)	(4.17)	(6.46)
Ret	0.022	0.018	0.017	-0.009	-0.005	-0.010
	(1.57)	(1.19)	(1.17)	(-0.67)	(-0.37)	(-0.81)
Badnews	0.029**	0.036***	0.026**	-0.012	-0.010	-0.008
	(2.50)	(2.97)	(2.18)	(-1.18)	(-0.98)	(-0.78)
*Badnews * Ret*	0.005	0.013	-0.002	-0.051	-0.060*	-0.034
	(0.16)	(0.38)	(-0.06)	(-1.41)	(-1.67)	(-1.05)
Log(Size)	-0.017	0.043***	0.006	0.023*	0.047***	0.020
	(-1.09)	(3.58)	(0.32)	(1.70)	(3.26)	(1.54)
Leverage	-0.088**	-0.035	-0.040	0.027	0.020	0.018
	(-2.17)	(-0.76)	(-0.89)	(0.44)	(0.30)	(0.30)
MtB	-0.001	-0.001	-0.001	-0.000	0.000	-0.001
	(-1.31)	(-1.26)	(-1.36)	(-0.40)	(0.04)	(-0.77)
ROA	-0.208***	-0.237***	-0.221***	-0.291***	-0.313***	-0.279***
	(-3.39)	(-3.54)	(-3.45)	(-3.59)	(-3.48)	(-3.27)
Crisis	0.047	0.046	0.062	-0.008	0.006	-0.015
	(1.34)	(1.29)	(1.59)	(-0.37)	(0.23)	(-0.63)
ΔCEO	-0.011	-0.015	-0.009	-0.008	-0.003	-0.007
	(-1.10)	(-1.39)	(-0.83)	(-0.86)	(-0.32)	(-0.81)
PrPro	-0.103***	-0.109***	-0.078**	0.028	0.044	0.029
	(-3.33)	(-3.52)	(-2.54)	(0.92)	(1.44)	(0.98)
IFRS	0.013	-0.006	0.007	-0.026	-0.028	-0.028
	(0.75)	(-0.32)	(0.39)	(-1.30)	(-1.40)	(-1.45)
AIM	-0.002	0.002	0.007	-0.025	-0.022	-0.028
	(-0.14)	(0.10)	(0.37)	(-1.13)	(-1.05)	(-1.34)
BigN	0.006	0.027	0.020	0.020	0.034**	0.021
	(0.34)	(1.51)	(1.11)	(1.31)	(2.27)	(1.37)
Closely Held Shares %	0.028	0.025	0.043	-0.016	-0.009	-0.023
	(0.91)	(0.77)	(1.34)	(-0.49)	(-0.25)	(-0.69)
InstOwn	0.132**	0.054	0.142**	-0.100	-0.099	-0.093
	(2.01)	(0.95)	(2.11)	(-1.61)	(-1.53)	(-1.58)
Log(Rearend)	0.025*	-0.002	0.017	-0.004	-0.004	-0.004
	(1.80)	(-0.19)	(1.15)	(-0.71)	(-0.78)	(-0.77)
Intercept	-0.381**	-0.765***	-0.573***	-0.174	-0.359**	-0.128
	(-2.21)	(-4.57)	(-3.05)	(-1.17)	(-2.29)	(-0.88)
*Ret + Badnews * Ret*	0.027	0.031	0.015	-0.059*	-0.065**	-0.044
	(0.93)	(1.00)	(0.49)	(-1.95)	(-2.07)	(-1.6)
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R^2	1.811	1.821	1.727	2.315	2.313	2.366
N	1,857	1,792	1,857	1,350	1,324	1,350

Notes: This table presents the tobit estimation results of the effect of disclosure on the relationship between impairment levels and contemporaneous drivers of impairments. The dependent variable is *Impgdw*. The regressions are estimated separately for subsamples of firms based on *PC Factor*. Z-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity, and clustered by firm. The extreme values of all continuous variables are winsorized at the 1 and 99 percentiles. Definition and measurement of variables are presented in Appendix A. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels respectively (two-tailed).