# Enforcement and Cash Flow Management to Delay Goodwill Impairments under IFRS

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Acknowledgements

We gratefully acknowledge the helpful comments of Anastasios Elemes, Martin Glaum, Humayun Kabir (discussant), Alexander Müller, Katherine Schipper and of workshop participants at the following workshops: Concordia University, Bocconi University, WHU University, 2016 EUFIN conference (Fribourg, Switzerland), 2017 EAA meeting (Valencia, Spain), and International Accounting Section 2017 Midyear AAA meeting (Tampa, Florida). A previous version of the manuscript was circulated under the title "The Effect of Audit Quality and Enforcement of Accounting Standards on Goodwill Impairment Avoidance".

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**Abstract:** Under IFRS, managers can use two approaches to increase the estimated recoverable value of a cash generating unit (CGU) to which goodwill has been allocated in order to justify not recognizing impairment: (1) make overly optimistic valuation assumptions (e.g., about discount rate, revenue growth, terminal growth rate), and (2) increase future cash flow estimates by increasing current cash flows. Because enforcement constrains the use of optimistic valuation assumptions we propose that the strength of enforcement influences the relative use of these two choices. Using an international sample of listed firms that report under IFRS, we document that the use of cash flow increasing management for firms that delay goodwill impairment is more positively associated with enforcement relative to a control sample that recognizes impairments. We also find that as enforcement increases, firms that delay goodwill impairment shorten the cash conversion cycle in the current year by delaying cash payments to suppliers, and that these transactions reverse in the next year. Finally, we show that cash flow management to delay goodwill impairment is detrimental to future performance.

**Keywords:** goodwill impairment; enforcement; cash flow management; IFRS

*"Write-offs of goodwill are confusing. When they happen, companies insist they do not matter. […] Yet those same bosses go to inordinate lengths to delay recognizing such supposedly irrelevant, non-cash losses."*[2]

## 1. Introduction

Goodwill resulting from business combinations is the difference between the price paid by the acquirer and the net fair value of acquired assets.[3] It reflects managers' expectation of synergies resulting from the transaction and also mechanically subsumes any overpayment because goodwill is a "plug in" number. Goodwill impairments generally convey a negative signal about the quality of past acquisitions, because bad mergers and acquisitions lead to more frequent and larger future goodwill impairments, which are essentially an admission of failure to extract value out of past acquisitions (Li et al., 2011; Caplan et al., 2017).[4] Managers have discretion in recognizing goodwill impairments because impairments are computed as the amount by which the carrying value of goodwill on the balance sheet exceeds its estimated fair value. According to agency theory, compensation, reputation, and debt covenant violation concerns give managers incentives to delay or avoid booking such goodwill impairments.[5] Managers can avoid recognizing a current impairment by making optimistic valuation assumptions and/or inflating the current level of cash flows, which serve as the base for projections of future cash flows used in valuation models (Banker et al., 2017). We examine whether and how institutional factors such as enforcement systematically relate to managers' use of inflated current cash flows to delay the recognition of goodwill impairment.

Our research question is relevant because managers may manage current cash flows to convince gatekeepers (e.g., auditors, market regulators) that impairing goodwill is unnecessary. Stronger enforcement may motivate managers to engage more in cash flow management versus making more optimistic valuation-model assumptions to support delaying goodwill impairment recognition. Given that deviation from unmanaged cash flows is costly, it is unclear whether having low enforcement and managed impairment tests using valuation-based inputs is

[2] See Tata Steel – Goodwill Hunting, May 14th, 2013 on the website of The Economist. Available at: http://www.economist.com/news/business/21578082-what-corus-write-reveals-goodwill-hunting

[3] Assuming the acquisition of 100% of a target firm's equity.

[4] For instance, the purchase of Tumblr by Yahoo in 2013 for $1.1 billion led to a goodwill impairment of $230 million in 2015, which is part of a larger asset impairment of $4.46 billion for that year.

[5] Hilton and O'Brien (2009), Ramanna and Watts (2012), and Li and Sloan (2017) report that managers delay recognizing economic impairment of goodwill in their books for long periods of time and, consistent with these findings, Hayn and Hughes (2006) and Jarva (2009) find that recognition of goodwill impairment usually lags behind deteriorating economic performance for several years.

preferable to having high enforcement and managed impairment tests using potentially value-decreasing cash flow management.

Understanding how and why a common standard can lead to different consequences across countries is relevant for standard setters as it is important to consider factors that shape financial reporting when reviewing or issuing new standards. As illustrated by the recent Post-Implementation Review of IFRS 3 Business Combinations (see EFRAG, 2016), accounting standard setters have often expressed concern about the accounting for goodwill. It is also relevant to understand heterogeneity in the implications of accounting standards for users of financial information such as investors and analysts when considering investment decisions across different countries. Several studies document heterogeneity in accounting practice across countries (e.g., Ball et al., 2000; Leuz et al., 2003; Nobes, 2011; Daske et al., 2013) and, in particular, with regard to the information content of goodwill impairments (Knauer and Wöhrmann, 2016). We extend this line of research by investigating a specific and important account over which managers can exert significant influence and for which enforcement matters.

Since 2005, under IAS 36, goodwill is no longer amortized but is instead tested for impairment at least annually (IASB, 2004). Impairment tests ensure that assets are not carried at more than their economic value and are instrumental in financial reports being conditionally conservative (Amiraslani et al., 2013; Lawrence et al., 2013; André et al., 2015). Goodwill is allocated to one or several cash generating units (CGUs) from which an entity expects to derive synergies. Standard setters expect that managers will use impairment tests to convey private information to users of financial statements about the amount, timing, and risk of future cash flows resulting from changes in the value of goodwill over time (Ramanna and Watts, 2012). Impairment tests are based on subjective fair value estimates of the value of CGUs (Hitz, 2007).[6] These estimates depend on managers' implementation of strategy and rely on subjective discounted cash flow estimates, which make them particularly difficult to audit. Nevertheless, auditors play a key role in ensuring that impairment tests are adequate and, in particular, that the assumptions underlying the subjective estimates are not unrealistic (Roychowdhury and Martin, 2013; Huikku et al., 2017; Lobo et al., 2017). Market regulators also play an important role in ensuring the adequacy of impairment tests within the spirit of GAAP. For example, the

[6] An (infrequent) exception is when the CGU to which goodwill has been allocated is listed. In this study, we follow the literature (e.g., Beatty and Weber, 2006; Hilton and O'Brien, 2009; Ramanna and Watts, 2012; Lawrence et al., 2013; Roychowdhury and Martin, 2013; KPMG, 2014; Filip et al., 2015) and conduct empirical tests using firm-level data because CGU-specific data is generally not available.

SEC's concern about the timeliness of impairment recognition is aptly expressed by a staff member who explains that "it would not be reasonable for a registrant to simply ignore recent declines in their stock price, as the declines are likely indicative of factors the registrant should consider in their determination of fair value, such as a more-than-temporary repricing of the risk inherent in any company's equity that results in a higher required rate of return or a decline in the market's estimated future cash flows of the company."[7]

Valuation models supporting estimates of the fair value of CGUs depend on two types of inputs: (1) valuation assumptions such as discount rates, expected revenue growth, expected profitability, and terminal growth rates; (2) the current level of cash flows that serves as the starting point for forecasting expected future cash flows over a business plan (Penman, 2006). We argue that managers may use unrealistic (aggressive) valuation assumptions and/or engage in cash flow-increasing management to increase the current level of cash flows, and thus delay recognizing economic goodwill impairment when facing pressure to do so. Unlike valuation assumptions, auditors and regulators cannot prevent managers from engaging in cash flow management. Nonetheless, aggressive valuation assumptions are unlikely to harm a firm's future performance, whereas inefficient management of current cash flows to accomplish reporting objectives may be detrimental to future performance (Cohen and Zarowin, 2010; Kothari et al., 2016).

The extent to which managers can engage in aggressive valuation assumptions is affected by the level of enforcement. Anecdotal evidence suggests that firms in low enforcement countries use more aggressive valuation assumptions to delay goodwill impairment than firms under similar conditions in high enforcement countries (see Appendix B). We reason that because managers have more flexibility in their valuation assumptions in countries with weaker enforcement, they will rely more on aggressive valuation assumptions to avoid reporting a goodwill impairment. By contrast, because current cash flows serve as the starting point for predicting future cash flows in discounted cash flow models for estimating fair values and because managers in countries with stronger enforcement are more constrained in their use of aggressive valuation assumptions, they will rely relatively more on cash flow-increasing management than on aggressive valuation assumptions to delay recognizing goodwill impairment. We examine how enforcement influences managers' use of cash flow-increasing management to delay recognizing goodwill impairment and the consequences of such actions

[7] Robert G. Fox III, "Remarks before the 2008 AICPA National Conference on Current SEC and PCAOB Developments" (Washington, D.C., December 8, 2008). See also ESMA (2013).

on firms' future performance. To examine our research question, we need to first identify firms that are delaying the recognition of economic goodwill impairment and to then document evidence of increased use of cash flow management. Our primary strategy for identifying firms that are delaying the recognition of economic goodwill impairment matches goodwill impairers with non-impairers that have booked goodwill at the beginning of the same industry-year and the closest market-to-book ratio.[8] It assumes that firms in a given industry-year group with a similar market-to-book ratio are, on average, subject to similar economic conditions. We rely on this strategy to identify firms that are likely to be delaying recognition of goodwill impairment (Suspect firms) and corroborate our findings using the following two alternate identification strategies. First, we supplement our primary strategy by also including the level of goodwill at the beginning of the year in our matching procedure in order to mitigate differences in incentives to impair goodwill.[9] Second, we follow Ramanna and Watts (2012) and identify Suspects as firms with booked goodwill and a market-to-book ratio below one for two consecutive years.

We draw our test samples from a population of 28,099 firm-year observations of firms reporting under IFRS from 36 countries over the period 2007 to 2014. We measure the strength of enforcement using the sum of proxies of enforcement of accounting standards, securities law, minority shareholder rights, and judicial independence developed by the World Economic Forum (2010) (e.g., Houqe et al., 2012; Brown et al., 2015). We also assess the robustness of our findings to using three alternative measures of enforcement.

We document the following findings. First, goodwill write-downs are both large and infrequent over our sample period. The frequency of impairment is approximately 13% for firms with goodwill at the beginning of the year. In addition, 46% of firms that book impairment in a given year recognize a single, large impairment write-down over a three-year window that represents 27% of beginning-of-year goodwill. Although this pattern is not as strong as in the U.S.,[10] it suggests that, on average, the recognition of goodwill impairment is delayed until it becomes difficult to avoid. If goodwill represents the value of intangible assets resulting from external growth activities that take a long time to develop, such as reputation, brand name,

[8] Because the information used by managers to test goodwill for impairment at the CGU level is not publicly available, we follow prior research (e.g., Beatty and Weber, 2006; Hilton and O'Brien, 2009; Ramanna and Watts, 2012; Lawrence et al., 2013; Roychowdhury and Martin, 2013; KPMG, 2014; Filip et al., 2015) and use the market-to-book ratio of equity to assess whether asset book values are likely to be overstated.

[9] We do not use on this matching approach for our main tests because the additional matching criterion reduces the sample size by about 25%.

[10] Using US data, Li and Sloan (2017) and Filip et al. (2015) report even larger and less frequent goodwill impairments (see also André et al., 2016).

market position, and human capital (Li and Sloan, 2017), then it is unlikely that such large amounts of economic goodwill impairment appear and disappear over short periods of time. Consistent with this argument, Roychowdhury and Martin (2013) also indicate that untimely asset impairments "represent cumulative losses that should have been recognized in prior periods and/or include the effect of earnings bath." The timing and size of impairments are related; delayed goodwill impairments are larger because they essentially are strong confirmation of poor past M&As.

Second, we document that firms suspected of delaying goodwill impairment engage in cash flow-increasing management and that the use of cash flow management to delay goodwill impairment is increasing in the level of enforcement. This finding is consistent across three different measures of cash flow management: (1) decisions that affect cash flows, such as discretionary expenditures and production management, (2) operating cash flow management, and (3) free cash flow management. We also find evidence that, as enforcement increases, cash flow management for Suspect firms is done through the timing of certain cash transactions such as delaying payments to suppliers and accelerating cash collections from customers, which shorten the cash conversion cycle. Furthermore, the shorter cash conversion cycle for Suspect firms in high enforcement countries reverses in the following year. These findings hold after controlling for a number of firm-specific factors that are likely to affect cash flow management (e.g., size, growth, leverage, analyst coverage, audit quality, financing decisions) and country-specific factors such as GDP growth.[11] Our findings are consistent with the argument that managers who are less (more) constrained in their valuation input assumptions because enforcement is low (high) use relatively more (less) aggressive valuation assumptions to avoid reporting goodwill impairment.

The effect of enforcement on the use of cash flow management to delay goodwill impairment is economically significant. An increase in enforcement from the first to the third quartile (approximately equivalent to the difference in enforcement levels between Canada and Mexico) is associated with a sizeable increase in cash flow management for Suspect firms relative to Control firms that ranges from 2.9% to 5.0% of lagged total assets.

Next, we find that the increased use of cash flow management in strong enforcement countries has several important implications. First, whereas greater abnormal cash flows may indicate superior economic performance and no need for impairment, we show that Suspect

[11] In robustness tests, we also find similar evidence using our alternative identification strategies of firms suspected of delaying goodwill impairments.

firms' future stock returns over one-to-two years after impairment avoidance are decreasing in the level of enforcement. These results corroborate the argument that the positive abnormal level of cash flows for Suspect firms is accomplished through management of production, R&D expenses, advertising, SG&A, timing of cash collections and payments, and/or capital expenditures that may be detrimental to future performance. Conversely, in jurisdictions where enforcement is lower, Suspect firms exhibit relatively higher future stock returns. This result is again consistent with the explanation that unlike Suspect firms that rely more on cash flow management in jurisdictions where enforcement is strong, Suspect firms in weak enforcement jurisdictions are more likely to delay goodwill impairment using aggressive valuation assumptions that do not adversely affect their future performance.

Second, we show that the likelihood of goodwill impairment for Suspect firms over the subsequent two years is increasing in the level of enforcement. This result indicates that as enforcement increases, the use of cash flow management allows Suspect firms to delay, but not avoid, goodwill impairment. Suspect firms in high enforcement countries that use cash flow management eventually book (untimely) goodwill impairment. Again, this finding corroborates the argument that abnormal cash flows indicate cash flow management to delay goodwill impairment, not sustainable superior economic performance.

Third, we document that, because enforcement limits the use of aggressive valuation assumptions but managers can increase the use of cash flow management to delay goodwill impairment in strong enforcement countries, impairment is, in fact, not conditionally timelier in strong enforcement countries relative to weak enforcement countries. Yet, consistent with our previous findings, we find that the strength of enforcement improves the unconditional frequency (unconditional timeliness) of impairments. The positive association between timeliness of earnings and enforcement documented by previous studies (Ball et al., 2000; Bushman and Piotroski, 2006) does not seem to apply to goodwill impairment.

Our main argument in this paper is consistent with the trade-off argument used in studies examining the relative use of accruals-based and real earnings management (e.g., Zang, 2012), according to which managers exploit different accounting mechanisms to achieve a financial reporting objective. In this literature, studies document that more fiduciary and regulatory scrutiny leads to greater real earnings management (Cohen et al., 2008; Chan et al., 2015; Ipino and Parbonetti, 2017). Our study differs in several important ways and offers incremental contribution to this line of research. First, because we focus on a unique and subjective accounting procedure, we are able to document findings that have more specific policy

implications. These findings are especially relevant given that the IASB is currently "exploring whether the existing impairment test for goodwill can be improved or simplified, whether goodwill should be amortised and which intangible assets should be separated from goodwill"[12] (see also EFRAG, 2016). Our findings that cash flow management of impairment tests for goodwill has unintended consequences speak to this debate because the IASB may not be aware of these negative consequences of the current impairment approach. Second, our study focuses on the trade-off between valuation assumptions and cash flow management to delay goodwill impairments, which is different from the trade-off between accruals-based and real activities management to influence earnings. Real activities that are focused on increasing cash flows to delay impairment have different implications from real activities that are focused on increasing earnings. This is because cash flow management to delay impairment can have both a direct and an indirect effect on earnings. For example, increasing cash flows by reducing discretionary expenditures like advertising and R&D will directly increase earnings, whereas increasing cash flows by reducing production will directly decrease earnings. By boosting current cash flows, these decisions will also help delay recognition of the impairment accrual and thus indirectly increase earnings. Alternatively, we find that some firms may accelerate collection of receivables and/or delay payments to suppliers to boost current cash flows in order to delay recognition of impairment. While this decision will have no direct effect on earnings, it will delay recognition of the impairment accrual and thus indirectly increase earnings. Overall, our study offers different insights from the accruals-based and real earnings management literature.

We contribute to the literature on goodwill accounting and reporting of performance following M&As (e.g., Beatty and Weber, 2006; Shalev, 2009; Bens et al., 2011; Gu and Lev, 2011; Ramanna and Watts, 2012; Darrough et al., 2014; Glaum et al., 2017; Li and Sloan, 2017). Past research explores how institutional characteristics influence investors' reactions to goodwill impairment announcements through the perceived reliability of the information (Knauer and Wöhrmann, 2016). Goodwill is a material asset for listed firms and goodwill impairment has a significant impact on earnings. Concerns about the reliability and the costs of the mark-to-model fair value estimates for goodwill currently required under US GAAP and IFRS have led to discussions in some countries about a return to amortization of goodwill. We shed light on how managers influence fair value estimates by documenting that the management of cash flows to support the delay of impairment is increasing in the level of enforcement. We believe that our results are relevant to auditors, standard setters, regulators, financial analysts,

[12] http://www.ifrs.org/projects/work-plan/goodwill-and-impairment/, retrieved November 10, 2017.

and investors regarding the implementation and potential shortcomings of the current goodwill impairment-testing regime. Prior literature also shows that several factors (e.g., financial distress, credit ratings, analysts' cash flow forecasts, correlation between stock returns and cash flows) create incentives for managers to inflate reported cash flows (Lee, 2012). We add to this literature by documenting another incentive that leads firms to inflate reported cash flows, i.e., the pressure to delay recognizing goodwill impairment.

The rest of this paper is organized as follows. We provide a brief overview of goodwill impairment tests under IFRS in Section 2. In Section 3, we discuss the role of enforcement regarding impairment tests and develop our hypotheses. Our empirical strategy is presented in Section 4. We present our sample and discuss our empirical findings in Section 5 and Section 6, respectively. We report the results of additional analyses in Section 7 and conclude in Section 8.

## 2. Testing goodwill for impairment under IFRS

IAS 36 prescribes the procedures to be followed to ensure that asset carrying values on the balance sheet do not exceed their future economic benefits. In practice these guidelines are for an entity "to ensure that its assets are carried at no more than their recoverable amount" (IAS 36.1). Impairment tests under IAS 36 must be conducted in two settings: (1) where there is indication that an asset is impaired (IAS 36.9); and (2) at least once annually, for intangible assets with an indefinite useful life or intangible assets not yet available for use (IAS 36.10). Goodwill, which has an indefinite useful life, must therefore be tested for impairment at least once a year or more frequently if there are indications that it has lost value. Indicators of value loss can be internal or external. Examples of an external indicator of goodwill value loss include an increase in the expected rate of return during the reporting period, which would lead to an increase in the discount rate applied to future cash flows, and a negative change in the technological, market, economic or legal environment of the entity (IAS 36.12). Notable examples of internal indicators are cash flows that are disappointing compared to the business plan and a higher than budgeted level of cash required to maintain the value of the CGU. Impairment losses for goodwill must be recognized immediately in the profit and loss account and cannot be reversed.

Impairment tests are of major importance for goodwill given the materiality of this asset for public firms. According to Singh (2014), "Goodwill write-offs, if done in a timely manner, are of interest in terms of the signal they send about the value of the company's intangible

assets, the company's future earnings prospects, and an assessment of the amount paid for acquisitions." The recoverable value of goodwill reflects management's expectations based on forecasted economic information. It relies on assumptions about management's future actions, including its conceptualization and implementation of firm strategy. Goodwill is tested for impairment for the CGU (or the group of CGUs) to which it is allocated based on the expected benefits of synergies (IAS 36.C2). A CGU is the smallest identifiable group of assets that generate cash inflows that are largely independent of the cash inflows from other assets or groups of assets. A CGU cannot be larger than an operating segment.

The recoverable amount of an asset (or a cash-generating unit) is defined as the higher of (1) its fair value less costs to sell; and (2) its value in use (IAS 36.18). It is not always necessary to determine both these values as long as either of them exceeds the asset's carrying amount. Although fair value less costs to sell can be considered the external reference of the value of goodwill, unless a CGU to which goodwill has been allocated is listed, the lack of market information and the specific nature of goodwill make using a fair value approach challenging. In practice, impairment tests for goodwill are usually based on estimates of value in use (Amiraslani et al., 2013; Tsalavoutas et al., 2014), which is assessed internally by management and equates to the recoverable value of the future economic benefits stemming from the CGU. IAS 36 requires that the calculation of an asset's value in use reflects:

a) "an estimate of the future cash flows the entity expects to derive from the asset;
b) expectations about possible variations in the amount or timing of those future cash flows;
c) the time value of money, represented by the current market risk-free rate of interest;
d) the price for bearing the uncertainty inherent in the asset; and
e) other factors, such as illiquidity, that market participants would reflect in pricing the future cash flows the entity expects to derive from the asset" (IAS 36.30).

This approach involves discounting the future cash flows expected from the CGU. The standard states that the volatility of expected cash flows (item b), the price of risk (item d), and other risk factors (item e) must be reflected either in the cash flows or in the discount rate used (IAS 36.32). The cash inflows and outflows attributable to a CGU must be based on a business plan using reasonable assumptions about the future level of business in normal conditions. Therefore, "In using information from financial budgets/forecasts, an entity considers whether the information reflects reasonable and supportable assumptions and represents management's best estimate of the set of economic conditions that will exist over the remaining useful life of

the asset" (IAS 36.38). This means using reasonable assumptions concerning competition and market trends (for example, forecasts of sales growth and long-term growth beyond the business plan period). Current cash flows are projected over three-to-five years based on reasonable assumptions. An impairment loss is recognized if the carrying value of a CGU exceeds its recoverable value. Unlike under US GAAP, an impairment loss is *recognized first* on the value of goodwill and then on the other assets in the CGU, on a pro-rata basis.

Overall, impairment-testing, particularly for intangibles with indefinite useful life such as goodwill, relies on valuation models, requires significant judgment from managers (Hilton and O'Brien, 2009; Petersen and Plenborg, 2010), and is prone to manipulation by managers because value in use is difficult to verify by outsiders (Hayn and Hughes, 2006; Ramanna, 2008; Bens et al., 2011; Ramanna and Watts, 2012; Giner and Pardo, 2015). This subjectivity can be exploited by management to delay booking economic impairments. However, as explained below, this subjectivity is limited by gatekeepers, in particular auditors and market regulators.

## 3. Hypotheses

### *3.1. Enforcement and the use of cash flow management to delay goodwill impairment*

The strength of enforcement ensures that the spirit of GAAP is respected and impairment tests are appropriately applied. Market regulators, such as ESMA in Europe, the SEC in the US, and other national regulators (e.g., the FSA in the UK and the AMF in France), play an important role in enforcing accounting standards. Lobo et al. (2017) report evidence of enforcement actions taken in 2010 in France by the AMF on matters related to goodwill impairments (AMF, 2010).[13] Several studies document the importance of enforcement in shaping financial reporting quality (e.g., Christensen et al., 2013; Brown et al., 2015). Effective market regulators ensure that firms use, document, and disclose reasonable valuation assumptions in their reports (Amiraslani et al., 2013; ESMA, 2013). Amiraslani et al. (2013) document differences across countries and industries in the level of compliance with regard to specific impairment-testing disclosures. Nonetheless, even effective regulators cannot influence managers' use of cash flow management and cannot, therefore, ensure the timeliness of impairments that depend on value in use estimates.

[13] France's enforcement score of 22.4 is above the mean enforcement score of 20.7 (see Table 2).

Knauer and Wöhrmann (2016) find a more negative investor reaction to goodwill impairment in countries with lower investor protection. They argue that managers may use discretion to underreport the true impairment in low investor protection countries. Another non-exclusive argument is that, in low enforcement countries, managers have more flexibility to delay goodwill impairment using valuation-based inputs. Therefore when firms in low enforcement countries announce an impairment it is interpreted more negatively because firms in low enforcement countries have more opportunities to delay goodwill impairment than firms in high enforcement and impair only when there is overwhelming evidence. Auditors also play a critical role in ensuring that impairment tests are conducted appropriately and that management's assumptions used to estimate the value in use of CGUs are realistic and adequately documented. Roychowdhury and Martin (2013) state that auditors "assess the propriety of managers' accounting choices including those pertaining to asset write-downs." International auditing standards also provide guidelines for the verification that auditors need to ensure that impairment tests are appropriate (see ISA 600). In some countries, auditors provide a brief discussion in their report of the work they undertake to support their opinion. In France for instance, the "Justification of assessment" section of the audit report often (briefly) explains that the auditors have reviewed the valuation assumptions used to test goodwill for impairment, among other things (see Appendix C for examples). Auditors therefore limit managers' ability to avoid recognizing goodwill impairment by using unrealistic valuation assumptions to support inflated CGU fair value estimates. Nevertheless, auditors look at GAAP compliance only and cannot challenge cash flow management, such as changing the timing of cash collections and payments, cutting R&D investments, decreasing advertising expenditures, or shirking on maintenance and employee training. If auditors closely scrutinize valuation assumptions used by managers to estimate CGUs' recoverable values, an alternative approach for managers to avoid booking goodwill impairment is to increase current cash flows and inflate fair value estimates based on higher projected cash flows.

The relative use of unrealistic valuation assumptions and cash flow management depends on their relative costs and benefits, which are affected by the strength of enforcement. We predict that the use of cash flow management to delay goodwill impairment is increasing in the strength of enforcement because regulators and auditors constrain managers' flexibility in choosing overly aggressive valuation assumptions in strong enforcement countries relative to weak enforcement countries. In appendix B, we provide anecdotal evidence that Suspect firms in low enforcement countries use more aggressive valuation assumptions than similar firms in

high enforcement countries. Because more aggressive valuation assumptions facilitate justification of greater recoverable values, managers in low enforcement countries have less need to rely on cash flow management in order to delay recognizing goodwill impairment. All else equal, managers attempting to delay goodwill impairment need to report higher cash flows in high enforcement countries. Therefore, we hypothesize the following:

H1: Cash flow-increasing management to delay goodwill impairment for firms facing pressure to do so is increasing in the level of enforcement.

### *3.2. Implications of the use of cash flow management to delay goodwill impairment in high enforcement countries*

Firms that increase their current level of cash flows when facing pressure to book goodwill impairment may exhibit improved operating performance, which would justify the non-recognition of impairment in the current period (and in future periods). It is possible that managers restructure firms when facing pressure to book goodwill impairment and thus achieve sustainable higher cash flows and better economic performance. If this is the case, we should find that future stock returns of Suspect firms are increasing in the strength of enforcement and the frequency of future impairment of Suspect firms is decreasing in the strength of enforcement.

Alternatively, if cash flow management is used mainly for reporting purposes to delay the recognition of goodwill impairment, then we should find that future stock returns for Suspect firms are decreasing in the strength of enforcement and that the frequency of future impairments is increasing in the strength of enforcement. Indeed, departure from optimal investments and operating activities harms future performance. If firms manage cash flows more aggressively to avoid booking goodwill impairment in strong enforcement countries, then it is likely that firms in these countries that delay impairment will exhibit lower future performance relative to firms facing similar pressure to book goodwill impairment in weak enforcement countries. Suspect firms in high enforcement countries that use cash flow management are more likely to eventually impair goodwill. Given these competing arguments we test the following two hypotheses (stated in the null form):

H2: Future stock returns for firms that delay goodwill impairment are unrelated to the level of enforcement.

H3: The likelihood of future goodwill impairment for firms that delay goodwill impairment is unrelated to the level of enforcement.

Both standard-setters and regulators have expressed concern regarding untimely impairment. For instance, Hans Hoogervorst, Chairman of the IASB, acknowledges his "concerns about goodwill resulting from business combinations" and admits that "[g]iven its subjectivity, the treatment of goodwill is vulnerable to manipulation of the balance sheet and the P&L" (Hoogervorst, 2012). Similarly, the European Securities and Markets Authority (ESMA) "found that significant impairment losses of goodwill recognized in 2011 were limited to a handful of issuers, particularly in the financial services and telecommunication industry" (ESMA, 2013).[14] The academic literature also provides empirical evidence suggesting a lack of timeliness of goodwill impairments (Ramanna and Watts, 2012; Filip et al., 2015; Li and Sloan, 2017).

Overall, although the strength of enforcement is likely to influence how impairment tests are conducted and some studies document international evidence of timelier goodwill impairment in stronger enforcement countries (Glaum et al., 2017), it is possible that the timeliness of impairment is not positively associated with the level of enforcement because regulators and auditors cannot constrain cash flow management. Several studies document a lack of timeliness in the U.S., a country with strong enforcement (Ramanna and Watts, 2012; Li and Sloan, 2017). Because managers have several alternatives to delay goodwill impairment, it is possible that the timeliness of goodwill impairment, i.e., conditional frequency of impairments, does not differ across strong and weak enforcement countries. Therefore, we test the following hypothesis:

H4: The strength of enforcement is not related to the timeliness of goodwill impairment.

## 4. Empirical strategy

### *4.1. Identification of firms with impaired goodwill*

Being able to accurately identify firms that are delaying the recognition of economic goodwill impairments is a critical feature of our overall empirical strategy. Information about tests of goodwill for impairment, which are conducted at the CGU (or group of CGUs) level, is not available to external users. Therefore, whether firms are delaying the recognition of goodwill

[14]The implementation of goodwill impairment testing under IFRS provides similar rules to SFAS 142 since the revision of IAS 36 in 2004. One difference between FAS 142 and IAS 36 is that goodwill is tested under a two-step approach under FAS 142.

impairment has to be inferred from publicly available data. One potential way of doing so is to focus on firm-level market and book values.

The market-to-book ratio of equity has been used in a number of studies to identify firms likely to be carrying impaired assets (e.g., Beatty and Weber, 2006; Hilton and O'Brien, 2009; Lawrence et al., 2013; Roychowdhury and Martin, 2013; Filip et al., 2015; Lobo et al., 2017). This ratio is also used as an indicator of impairment in the industry. For instance, the SEC considers market-to-book a relevant indicator of potential goodwill impairment. In a survey about the usefulness of goodwill impairment tests, KPMG (2014) explains that although interviewees agreed that a market-to-book less than one does not automatically warrant an impairment loss, it is a relevant indicator that requires further assessment of a potential goodwill impairment.[15]

Because economic impairments are unobservable, we draw on past literature and use several approaches to identify firms that are likely to have impaired goodwill. Our primary identification strategy follows Filip et al. (2015) and matches firms that carry goodwill at the beginning of the year and report a goodwill impairment with firms in the same industry-year (two-digit SIC industry) and the closest market-to-book that carry goodwill (at the beginning of the year) but do not report a goodwill impairment.[16] The underlying assumption of this approach is that firms in the same industry-year are subject to similar economic conditions. If they exhibit similar relative market value to net asset value, it is likely that they should also be recognizing an impairment loss. We identify these matched non-impairers as Suspects

For our first alternate identification strategy, we also identify Suspect firms by matching non-impairers in the same industry-year based on the level of market-to-book ratio and the level of goodwill. Our second alternative identification strategy draws on Ramanna and Watts (2012), who identify Suspects as firms with booked goodwill that have a market-to-book below one for two consecutive years but did not recognize an impairment of goodwill. A market-to-book below one over a short period of time may merely indicate that managers possess positive

[15] Chen et al. (2017b) argue that the use of the market-to-book ratio as an indicator of goodwill impairment may lead to "market-driven" unnecessary impairments when prices deviate temporarily from fundamentals, for instance, during financial crises. They find that in the US approximately a sixth of impairments can be considered as "market-driven impairments". Our analyses yield similar results if we exclude the 2008-09 financial crisis period and if we identify Suspect firms as firms with a market-to-book ratio below one for *two* consecutive years, which is less likely to result from a "temporary" market-driven impairment (see Section 7 Additional Tests).

[16] We restrict the difference in market-to-book ratio between impairers and matched non-impairers to a maximum of 0.25 to allow meaningful comparisons between 'Suspect' firms and Control firms. Our results are qualitatively similar if we use smaller differences in market-to-book between Suspect and Control firms (i.e., 0.20 and 0.10), but the sample size decreases significantly

private information about the fundamental value of goodwill that market participants do not recognize. Nonetheless, financial markets are unlikely to be inefficient at reflecting such information over a longer time period, and a market-to-book below one for two consecutive years suggests an increased likelihood that goodwill is permanently impaired.

Identification strategies based on matched impairers and non-impairers with market-to-book below one for two consecutive years have advantages and disadvantages. In matched impairer strategies, the number false positives (Type I errors), i.e., Suspects that do not, in fact, carry impaired goodwill, depends on the quality of the matching, which is based on the following three key factors: industry, year, and market-to-book ratio (and beginning of the year level of goodwill in a robustness test). However, the number of false negatives (Type II errors), i.e., non-Suspect firms that, in fact, carry impaired goodwill, is lower than for the market-to-book below one identification strategy because firms with market-to-book above one may in fact also carry impaired goodwill. Firms may have a market-to-book above one and carry impaired goodwill, for instance if the value in use of several CGUs compensate each other. On the other hand, if suspect firms are identified based on market-to-book below one for two years false positives (Type I errors) are lower because this approach is stringent in identifying Suspect firms. Overall, the matching identification strategies yield higher Type I errors but lower Type II errors than the market-to-book below one identification strategy. We believe that together, our identification strategies allow us to triangulate the firms that delay the recognition of economic goodwill impairment.

### *4.2. Measuring cash flow management*

We use three measures to capture the extent of cash flow management: (1) cash flow management identified and adapted from the real earnings management literature (*CFM*) (e.g., Roychowdhury, 2006; Zang, 2012), (2) operating cash flow management (*OPCFM*), and (3) free cash flow management (*FCFM*). Although there is considerable overlap between these three measures, they also capture different dimensions of cash flow management.

Drawing on Roychowdhury (2006), we focus on two approaches to real activities management that increase cash flows: (1) cutting discretionary expenditures, including research and development (R&D), advertising, and selling, general and administrative (SG&A) expenditures, and (2) increasing cash flows by underproducing and selling off inventories to meet demand.[17] We use the abnormal level of discretionary expenditures to capture the first

[17]See also Cohen et al. (2008), Cohen and Zarowin (2010), and Zang (2012).

approach and abnormal production costs to capture the second approach to cash flow management.

We estimate the normal level of discretionary expenses with the following model:

$$DISX_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_{t-1}/A_{t-1}) + \varepsilon_t \quad (1)$$

where:

$DISX_t$ = sum of R&D, advertising, and SG&A expenditures in year $t$;
$A_{t-1}$ = lagged total assets adjusted for the amount of goodwill;
$S_{t-1}$ = lagged total sales.

We estimate model (1) cross-sectionally for each two-digit industry-year with at least 20 observations. We measure abnormal discretionary expenditures ($CFM_{DISX}$) as the estimated residuals of model (1) multiplied by (-1) so that higher $CFM_{DISX}$ (lower discretionary expenditures) represents an increase in current cash flows.

We estimate the normal level of production costs with the following model:

$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_{t-1}/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \alpha_4(\Delta S_{t-1}/A_{t-2}) + \varepsilon_t \quad (2)$$

where:

$PROD_t$ = sum of cost of goods sold in year $t$ and the change in inventory from $t-1$ to $t$;
$A_{t-1}$ = lagged total assets adjusted for the amount of goodwill;
$S_t$ = total sales in year $t$;
$\Delta S_t$ = change in total sales from $t-1$ to $t$.

We estimate model (2) cross-sectionally for each industry-year with at least 20 observations and measure the abnormal level of production costs ($CFM_{PROD}$) as the residuals of model (2) multiplied by (-1) so that higher $CFM_{PROD}$ indicates higher cash flows. Over-production allows fixed costs to be spread over a larger number of units. The higher is $CFM_{PROD}$, the higher is reported earnings because cost of goods sold is lower, but the current level of cash flows is also lower. Firms incur production and holding costs on the over-produced items that lead to lower cash flows from operations for a given sales level (Roychowdhury, 2006). Next, we compute $CFM$ as the sum of $CFM_{DISX}$ and $CFM_{PROD}$.

Second, because current cash flows can also be increased by stretching suppliers' payables, collecting account receivables faster, reducing inventories, and cutting various operating cash

expenses, we also examine abnormal operating cash flows. We estimate the normal level of current operating cash flows with the following model:

$$OCF_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_{t-1}/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \varepsilon_t \quad (3)$$

where:

$OCF_t$ = operating cash flows;
$A_{t-1}$ = lagged total assets adjusted for the amount of goodwill;
$S_t$ = total sales in year *t;*
$\Delta S_t$ = change in total sales from $t - 1$ to *t.*

We estimate model (3) cross-sectionally for each industry-year with at least 20 observations and measure the abnormal level of current abnormal operating cash flows (*OPCFM*) as the residuals of model (3).

Third, because impairment tests are based on discounted free cash flows, we also compute abnormal levels of current free cash flows. Since operating cash flows minus capital expenditures are a good proxy of free cash flows (Penman, 2006), we compute abnormal free cash flows (*FCFM*) as abnormal operating cash flows from model (3) minus abnormal levels of capital expenditures. We estimate the normal level of capital expenditures with the following model:

$$CAPEX_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_{t-1}/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \alpha_4(PPE_t/A_{t-1}) + \varepsilon_t \quad (4)$$

where:

$CAPEX_t$ = capital expenditures in year *t*;
$A_{t-1}$ = lagged total assets adjusted for the amount of goodwill;
$PPE_t$ = gross property, plant, and equipment in year *t;*
$\Delta S_t$ = change in total sales from $t-1$ to *t.*

We estimate model (4) cross-sectionally for each industry-year with at least 20 observations. We measure the abnormal level of capital expenditures (*CAPEXM*) as the residuals of model (4) and then compute abnormal free cash flow (*FCFM*) as *OPCFM* minus *CAPEXM*.

*4.3. Management of the cash conversion cycle*

We also examine the change in cash conversion cycle to explore how firms manage operating cash flows and in particular whether they use the timing of specific cash transactions such as collecting account receivables faster and delaying payments to suppliers to improve operating cash flows. We compute firms' change in cash conversion cycle in year $t$ ($\Delta CCC_t$) and in year $t$+1. We measure the cash conversion cycle as days of account receivables plus days of inventories minus days of account payables.[18] Following a similar argument to Lee (2012), a deliberate effort to increase reported operating cash flows in the year of impairment avoidance would shorten the cash conversion cycle in that year, and reverse it in the next year.[19] Alternatively, if the shorter cycle persists into the following year, then this would indicate a sustainable improvement in working capital management. We test whether the cash conversion cycle becomes lower for Suspect firms as enforcement increases and whether it reverses in the next year.

## 5. Sample

We obtain data from Thomson Reuters Eikon. We collect data on firms covered in Eikon applying IFRS from 36 countries over the period 2007-2014. We delete financial institutions, and require that firms report under IFRS for at least three years. We delete observations with unavailable data and negative market-to-book or lagged market-to-book. Our main sample consists in 25,415 firm-year observations. Panel A of Table 1 summarizes our sample selection process.

[Insert Table 1 About Here]

Panel B of Table 1 provides univariate descriptive statistics for the variables used in the models (all continuous variables are winsorized at the first and ninety-ninth percentiles). Mean (median) production costs (*PROD*) represent 75.1% (58.5%) of lagged total assets, and mean (median) discretionary expenses (*DISX*) are 28.5% (18.8%) of lagged total assets. Cash from operations (*CFO*) and capital expenditures (*CAPEX*) have a mean (median) of 7.0% (7.7%) and 7.2% (4.8%), respectively. By construction, the three proxies for cash flow management variables (*CFM*, *OPCFM* and *FCFM*) exhibit a mean value close to zero. The mean (median)

[18] Days of account receivables = $365\times[(AR_t + AR_{t-1})/2]/S$. Days of account payables = $365\times[(INV_t + INV_{t-1})/2]/CGS$. Days of account payables = $365\times[(PAY_t + PAY_{t-1})/2]/Purchases$. *Purchases* = *CGS* + change in *INV*.

[19] Unlike the timing of transactions affecting the cash conversion cycle, changes to discretionary expenses might not reverse the next year.

change in the cash conversion cycle ($\Delta CCC$) is 1.5 day (0.7 day). The mean (median) return (*RET*) is 13.6% (1.1%) and is positively skewed. The mean (median) market-to-book (*MB*) is 1.98 (1.30). The mean (median) firm size (*SIZE*) is 5.48 (5.27). The mean (median) leverage (*LEV*) is 0.694 (0.392). Return on assets (*ROA*), excluding goodwill and the effect of goodwill impairment (if any), exhibits a mean (median) value of 10.8% (10.8%). Around 50% of the firms in our sample are audited by a Big 4 auditor (*BIG4*) and the mean (median) number of analysts following a firm (*COVERAGE*) is 5.04 (1.00). About 37% of firms issue debt in any given year (*DISSUE*) and about 20% issue equity in any given year (*EISSUE*). We also report the amount of goodwill at the beginning of the year for the 17,040 observations that report goodwill on the balance sheet. Goodwill is material as the mean (median) opening balance of goodwill represents 13.5% (8.1%) of total assets at the beginning of the year.

Panel C of Table 1 presents statistics on the percentage of observations with booked goodwill and the frequency of goodwill impairments. Approximately 60% of observations exhibit goodwill in their balance sheet at the beginning of the year (60.6% = 8.3% + 52.4%). The frequency of goodwill impairment in the full sample is relatively low as "only" 2,506 (2,506 = 2,317 + 189) observations recognize an impairment in any given year, which represents 8.9% of the full sample. We find that 189 observations impair goodwill although they did not report booked goodwill at the beginning of the year (this can be explained by acquisitions being completed and impairment recognized during the same year). We find that 38.7% of observations had neither impaired goodwill nor booked goodwill at the beginning of the year (these firms are excluded from all cash flow management tests).

[Insert Table 2 About Here]

Table 2 shows the enforcement scores (*ENF*) for each country, the number of observations, and number of impairments per country and per year (Panel A). Sweden, Norway and Germany exhibit the highest enforcement scores while Russia and Ukraine have the lowest enforcement scores. Observations are well distributed across countries with no country accounting for more than 14.0% of all observations. Countries with the largest number of observations are the UK (13.1%), South Korea (12.4%), and Australia (10.8%). France, the UK, Australia and Germany have the highest (unconditional) frequencies of impairments, with 15.7%, 14.3%, 11.9% and 10.2%, respectively, of all the impairments. Interestingly, although South Korea accounts for 12.4% of all the observations, it represents only 1.8% of all the impairments. Fiscal year 2009 exhibits the highest frequency of impairments with 16.6% of all

the impairments, whereas fiscal year 2007 shows the lowest frequency of impairments with only 8.9% of all the impairments.

Panel B and Panel C of Table 2 present descriptive statistics for the sub-sample of 2,317 firm-year observations that impair goodwill in year *t*. Panel B shows that the mean (median) goodwill impairment is material as it accounts for 21.9% (6.7%) of beginning of year goodwill (respectively 2.7% (0.5%) of lagged total assets). For impairers, the mean (median) amount of pre-impairment goodwill is significant; it accounts for 16.5% (12.3%) of total assets. Panel C shows the number and magnitude of impairments for impairers in *t* over a three-year window. It indicates that, on average, managers tend to favor a single large impairment in one year over multiple smaller impairments booked in several years. Indeed 45.6% of impairers recognize a single impairment over a three-year window, and write down on average 27.1% of beginning of year goodwill. Only 32.5% and 21.9% of impairers book two or three (smaller) impairments over a three-year window. Large economic shocks may trigger such large impairments but they should be less frequent than smaller economic shocks. Although less extreme, the data reveal a pattern consistent with the findings of Li and Sloan (2017) using US data, who document that 46% of impairers write-off more than 50% of goodwill.

Interestingly, this pattern is in line with Dichev et al. (2016)'s survey results of CFOs' reporting behaviors, which indicate that CFOs have a preference for large and infrequent one-time items. As one interviewee explains, "When you do one-time items, I will admit that at least in the short term, the analysts look past them. But it is sometimes almost too easy to do one-time write-downs. It can become a habit, and that is when they impact the company's reputation for quality of earnings." The interviewee adds, "So, you are spending your bank account of credibility when you do one-time items. You have got to make sure that those truly are one-time and that they are material enough that it makes sense to try to exclude them, but I look at it as a loss of credibility every time we have to do one."

## 6. Empirical findings

### *6.1. Enforcement and the use of cash flow management to delay goodwill impairment (H1)*

To test whether the use of cash flow management to delay goodwill impairments is related to enforcement, we first identify Suspect firms using our primary identification strategy. This approach matches impairers with non-impairers in the same industry-year with the closest

market-to-book ratio of equity. Matched non-impairers are likely to be delaying the recognition of an economic impairment. Impairers serve as the Control group in this test.

In Table 3, we estimate the following OLS models to test H1, which posits that cash flow management to delay goodwill impairment is increasing in the level of enforcement:

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 MB_t + \beta_3 SIZE_{t-1} + \beta_4 chREV_t + \beta_5 LEV_t + \beta_6 BIG4_t + \beta_7 COVERAGE_t + \beta_8 DISSUE_t + \beta_9 EISSUE_t + \beta_{10} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon \quad (5)$$

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon \quad (6)$$

where:

$M_t$ = one of the following three variables: cash flow management through discretionary expenditures ($CFM_t$) for fiscal year $t$ measured as the sum of the residuals of models (1) and (2); operating cash flow management ($OPCFM_t$) for fiscal year $t$ measured as the residuals of model (3); free cash flow management for fiscal year $t$ ($FCFM_t$) measured as the sum of the residuals of models (3) and (4).

$SUSPECT_t$ = 1 for non-impairers matched to impairers in the same industry-year with the closest market-to-book, and 0 otherwise;

$MB_t$ = market-to-book ratio of equity;

$SIZE_{t-1}$ = natural logarithm of lagged total assets;

$chREV_t$ = change in sales for year $t$ divided by lagged total assets adjusted for goodwill;

$LEV_t$ = total debt divided by total equity;

$BIG4_t$ = 1, if the firm is audited by one of the Big 4 auditors (PwC, EY, Deloitte or KPMG) and 0 otherwise;

$COVERAGE_t$ = number of analysts covering the firm;

$DISSUE_t$ = 1 if the total debt increases by more than 30%, and 0 otherwise;

$EISSUE_t$ = 1 if the par value of common equity increases by more than 30%, and 0 otherwise;

$GDPGR_t$ = percentage GDP growth rate at country and year level;

*ENF* = sum of proxies of country-level enforcement of accounting standards, of securities law, of minority shareholder rights and the judicial independence developed by the World Economic Forum (2010).

We use model (5) as a benchmark to test whether, on average, Suspect firms manage current cash flows upward relative to Control firms. We use model (6) to examine whether the use of cash flow management by Suspect firms, if any, is increasing in enforcement. In model (5) the main coefficient of interest, $\beta_1$, measures the difference in the level of abnormal cash flow management between Suspect and Control firms. We use model (6) to test H1. In model (6), the main coefficient of interest, $\beta_3$, captures the incremental association between enforcement and the level of cash flow-increasing management for Suspects relative to Control firms. H1 predicts a positive coefficient $\beta_3$, as Suspect firms are likely to use more cash flow management to delay goodwill impairments as enforcement increases than to rely on manipulation of valuation assumptions.

We control for a number of important factors that are likely to affect cash flow management. These factors include growth opportunities (*MB*), firm size (*SIZE*), sales growth (*chREV*), leverage (*LEV*), firm-specific audit quality (*BIG4*), analyst following (*COVERAGE*), debt issue (*DISSUE*), equity issue (*EISSUE*), macroeconomic conditions (*GDPGR*), and also for year and industry fixed effects. We present the estimation results of models (5) and (6) in Table 3.

[Insert Table 3 About Here]

Panel A of Table 3 shows that Suspect firms (*SUSPECT*) exhibit upward cash flow management relative to Control firms for all three cash flow management proxies; the coefficient $\beta_1$ on *SUSPECT* for *CFM*, *OPCFM* and *FCFM* is positive and significant at less than 1% (two-sided) for all three measures of cash flow management. This result is consistent with the argument that managers engage in cash flow management to improve current cash flows and thus support the non-recognition of goodwill impairment when they face pressure to do so. The magnitude of cash flow management is economically significant, ranging between 1.28% and 2.07% of lagged total assets. Overall, our findings are in line with Filip et al. (2015) who examine a sample of US firms.

Panel B of Table 3 reports the estimation results of model (6), which allows us to test H1. We find evidence that Suspect firms exhibit a stronger positive association between cash flow management and enforcement than Control firms ($\beta_3$, the coefficient for *SUSPECT* × *ENF*, is

positive and significant at 1% (two-sided) for all three proxies of cash flow management). In other words, cash flow management for Suspect firms relative to Control firms is increasing in the level of enforcement, which supports H1.

The economic significance is not inconsequential. An increase of enforcement from the first to the third quartile of the distribution of *ENF* (6.53 pts = 23.99 – 17.46) is associated with an incremental increase of cash flow management for Suspect firms relative to Control firms ranging between 2.9% and 5.0% of lagged total assets (2.9% = 0.0044 × 6.53 pts and 5.0% = 0.0077 × 6.53 pts, respectively). This difference of enforcement is approximately equivalent to the difference between Canada (*ENF* = 24.07) and Mexico (*ENF* = 17.75).

These findings corroborate the argument that managers in high enforcement countries have fewer opportunities to use aggressive valuation assumptions to support the non-impairment of goodwill, and therefore rely more on cash flow-increasing management as enforcement increases. Panel B also reveals that the positive abnormal cash flows for Suspect firms documented in Panel A is driven by Suspect firms located in high enforcement countries.

Next, we examine whether enforcement is positively associated with improvement of cash flows through shortening the cash conversion cycle for Suspect firms. These actions have no direct effect on reported earnings. We estimate model (6) after replacing the dependent variable with $\Delta CCC_t$ and $\Delta CCC_{t+1}$ (and each component of $\Delta CCC_t$: $\Delta REC_t$, $\Delta INV_t$, $\Delta PAY_t$) and present the results in Table 4.

[Insert Table 4 About Here]

Panel A of Table 4 shows that Suspect firms exhibit a stronger negative association between the current year change in length of cash conversion cycle and enforcement than Control firms: $\beta_3$, the coefficient for *SUSPECT* × *ENF*, is negative and significant at 1% (two-sided) for $\Delta CCC_t$. As enforcement increases Suspect firms exhibit a shorter cash conversion cycle in the year of impairment avoidance. An increase of enforcement from the first to the third quartile of the distribution of *ENF* (+6.53 pts) is associated with a 23-day shorter cash conversion cycle for Suspect firms relative to Control firms (-23 days = -3.58 × 6.53 pts).We find the opposite result when we relate next year's change in length of cash conversion cycle to enforcement, i.e., Suspect firms exhibit a stronger positive association between the change in cash conversion cycle and enforcement than Control firms: $\beta_3$, is positive and significant at 10% (two-sided) for $\Delta CCC_{t+1}$. This result indicates that the apparent improvement in working capital management in the year of impairment avoidance is not sustained; it increases in the

next year by +17 days when enforcement increases from the first to the third quartile. Panel B of Table 4 indicates that the reduction of the cash conversion cycle in year *t* is driven by the increase in cash flows resulting from a positive change in days of accounts payable (significant at less than 1%, two-sided).

Overall, the findings in Table 3 and in Table 4 support the argument that firms carrying impaired goodwill that face pressure to book write downs manage cash flows upward, especially in high enforcement countries (H1).

*6.2. Implications of cash flow management to delay goodwill impairment for future stock returns (H2), subsequent goodwill impairments (H3), and timeliness of impairments (H4)*

It is possible that the documented positive abnormal cash flows for Suspect firms relative to Control firms reflect superior economic performance, which would justify the non-impairment of goodwill. If this is the case, then Suspect firms that exhibit larger abnormal cash flows in high enforcement countries should exhibit positive future stock returns and a lower likelihood of impairment in the future. Yet, several studies suggest that engaging in real activities management to achieve short-term reporting objectives is detrimental to future performance (e.g., Graham et al., 2006; Kothari et al., 2016). Thus the level of enforcement for Suspect firms may be negatively associated with their future performance because stronger enforcement leads firms to engage more in cash flow management, which may negatively impact their future stock returns (H2) and positively affect the likelihood of future impairments (H3).

To test H2, we estimate the following OLS model:

$$RET_{t,\ t+1\ or\ t,\ t+2} = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 SIZE + \beta_5 MB + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon \quad (7)$$

where:

$RET_{t,\ t+1\ or\ t,\ t+2}$ = stock returns computed from the beginning of the fiscal year to the end of fiscal year *t* ($RET_{t-1,t}$); from the end of the fiscal year to the end of fiscal year *t+1* ($RET_{t,\ t+1}$) or from the end of fiscal year *t* to the end of fiscal year *t+2* ($RET_{t,\ t+2}$);

The other variables are as defined previously.

The main coefficient of interest is $\beta_3$, which measures the incremental association between future performance and enforcement for Suspect firms relative to Control firms. If cash

flow management is detrimental to future performance, we predict that $\beta_3$ will be insignificant for $RET_t$ and negative for $RET_{t,t+1}$ and $RET_{t,t+2}$, i.e., Suspect firms use more cash flow management in high enforcement countries to delay goodwill impairment, which adversely affects their future performance. Conversely, if abnormal cash flow management reflects stronger economic performance, then $\beta_3$ will be positive. We present the estimation results in Table 5.

[Insert Table 5 About Here]

The results presented in Panel A of Table 5 show that, while Suspect firms exhibit no difference in the relation between *ENF* and contemporaneous stock returns in year *t* ($RET_{t-1,t}$), they exhibit a more negative association between future one-year buy-and-hold returns ($RET_{t,t+1}$) and enforcement relative to Control firms in the year following the non-recognition of economic goodwill impairment ($\beta_3$ is negative and significant at less than 5% for $RET_{t,t+1}$, two-sided test). An increase of enforcement from the first to the third quartile of the distribution of *ENF* (+6.53 pts = 23.99 – 17.46) is associated with a difference in stock returns between Suspect and Control firms ranging between -12.8% and -13.5% (-12.8% = -0.0196 × 6.53 pts and -13.5% = -0.0207 × 6.53 pts, respectively).

We also find a more negative association between future two-year buy-and-hold returns ($RET_{t,t+2}$) and enforcement for Suspect firms following the non-recognition of economic goodwill impairment ($\beta_3$ is negative and significant at less than 5%, two-sided test). An increase in enforcement between the first and third quartiles of *ENF* is associated with a difference in two-year buy-and-hold stock returns between Suspect and Control firms ranging between -21.3% and -21.7% (-21.3% = -0.0327 × 6.53 pts and -21.7% = -0.0332 × 6.53 pts, respectively).

We also examine whether the level of enforcement for Suspect firms has a positive effect on the likelihood of impairment in the following year or the two subsequent years (H3). If greater current abnormal cash flows reflect better economic performance, then Suspect firms will be less likely to impair goodwill in subsequent years. Conversely, if managers attempt to avoid goodwill impairment using cash flow management, then we expect that, as enforcement increases, they will eventually have to impair goodwill.

To test H3, we estimate the following logistic model:

$$\Pr(DIMP_{t+1/t+2}=1) = \alpha_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 RET_{t+1/t+2} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon \quad (8)$$

where:

$DIMP_{t+1/t+2}$ = 1 if the firm impair goodwill in year *t+1* ($DIMP_{t+1}$) or impair goodwill in year t+1 and/or *t+2* ($DIMP_{t+1,t+2}$).

The other variables are as defined previously.

The main coefficient of interest in model (8), $\beta_3$, measures the incremental association between the future likelihood of goodwill impairment and enforcement for Suspect firms relative to Control firms. We control for future stock returns and include year and industry fixed effects in model (8). Panel B of Table 5 presents the estimated results of model (8).

The results indicate that the association between the likelihood of future impairment in *t+1* and/or *t+2* and enforcement is greater for Suspect firms than for Control firms ($\beta_3$ is positive and significant, at less than 1%, two-sided test). This suggests that abnormal cash flows do not reflect superior economic performance and that, as enforcement increases, Suspect firms are eventually more likely to recognize goodwill impairments relative to Control firms despite exhibiting superior abnormal cash flows.

Overall, we find corroborating evidence that engaging in cash flow increasing management to delay goodwill impairment in stronger enforcement countries is likely to harm future performance.

We also examine the implication of cash flow management for the difference in the timeliness of impairments between high and low enforcement countries (H4). Stock returns reflect current news about the timing, amount, and uncertainty of future cash flows. Following Basu (1997), the association between current stock returns and earnings has been used to measure timeliness of earnings, i.e., the sensitivity of earnings to (good/bad) news. Similarly, stock returns can be used to measure the timeliness of impairments. As explained by Banker et al. (2017), "a negative stock return reflects a decline in the present value of expected cash flows over a long time horizon, and likely has a greater impact on write-downs of long-lived assets [such as goodwill]." The difference in the association between the likelihood of goodwill impairment and stock returns between high enforcement and low enforcement countries is used to measure the timeliness of impairments. We reason that if, on average, goodwill impairments are not timelier in high enforcement countries than in low enforcement countries, then the association between the likelihood of impairment and contemporaneous stock return will not differ.

We test the difference in the timeliness of impairment between high and low enforcement countries (H4) by estimating the following logit model.

$$\begin{aligned} Pr(DIMP_t = 1) = {} & \alpha_0 + \beta_1 RET_t + \beta_2 RET_{t-1} + \beta_3 RET_{t-2} + \beta_4 RET_{t-3} + \beta_5 HIGHENF \\ & + \beta_6 RET_t \times HIGHENF + \beta_7 RET_{t-1} \times HIGHENF \\ & + \beta_8 RET_{t-2} \times HIGHENF + \beta_9 RET_{t-3} \times HIGHENF \\ & + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon \end{aligned} \quad (9)$$

where:

$DIMP_t$ = 1 if the firm impairs goodwill in fiscal year $t$, and 0 otherwise;

$RET_t$ = stock return for fiscal year $t$.

*HIGHENF* = 1 if the enforcement metric (*ENF*) is above the median, and 0 otherwise. ENF is the sum of proxies of country-level enforcement of accounting standards, of securities law, of minority shareholder rights, and of judicial independence developed by the World Economic Forum (2010).

To test H4, which posits that the strength of enforcement does not improve the timeliness of goodwill impairment, we examine $\beta_6$, which measures the differential association between the likelihood of impairment and contemporaneous stock returns between high and low enforcement countries. A negative (positive) $\beta_6$ indicates that impairments are more (less) timely in high enforcement countries than in low enforcement countries. We present the estimation results of model (9) in Table 5 Panel C.

The results indicate that the current year's stock returns as well as the past three years of lagged returns are significantly negatively related to recognition of goodwill impairment at the end of year $t$ ($\beta_1$, $\beta_2$, $\beta_3$, and $\beta_4$, are negative and significant at less than 1%, two-sided tests). These results imply that managers lag behind market participants by up to three years in recognizing economic goodwill impairments.

Remarkably, while we find that enforcement improves the *unconditional* frequency of impairment ($\beta_5$ is positive and significant at less than 1%, two-sided test), we do not find that the strength of enforcement improves the *timeliness* (i.e., *conditional* frequency) of goodwill impairments; $\beta_6$ is not statistically negative (two-sided test). This result indicates that the timeliness of goodwill impairments is no different between high and low enforcement countries, and is consistent with the prediction of increased cash flow management to avoid reporting timely goodwill impairment as enforcement increases..

## 7. Additional analyses

### *7.1. Alternate identification strategies*

A critical feature of our empirical strategy is being able to identify firms that delay the recognition of goodwill impairment. To corroborate our core evidence that managers engage more in cash flow management to delay goodwill impairment as enforcement increases (H1), we rely on two alternate identification strategies.

First, we strengthen the matching of impairers with non-impairers in our primary identification strategy by imposing the additional criterion that the difference in the level of goodwill scaled by total assets at the beginning of the year be no greater that 0.05. Although in our primary identification strategy both Suspect and Control firms carry goodwill, lower levels of goodwill relative to Control firms may still explain why Suspect firms (i.e., matched non-impairers) do not impair goodwill.

Second, we use the approach of Ramanna and Watts (2012) as an alternative identification strategy to identify Suspect firms. This approach reasons that firms with booked goodwill and a market-to-book below one for two consecutive years that did not report any goodwill write-downs are likely to be delaying the recognition of economic goodwill impairment. It is stringent in identifying firms that are delaying goodwill impairment because firms with a market-to-book below one over extended periods are likely to suffer economic impairment of goodwill. We note that, unlike under US GAAP, an impairment loss is recognized first in goodwill and then in the other assets in the CGU under IFRS. This feature of IFRS reinforces the ability of this strategy to identify firms carrying impaired goodwill. To allow meaningful comparisons between Suspect and Control firms we use firms carrying goodwill with a market to book below one that have impaired goodwill over one year or both years as the Control group for this identification strategy.

We re-estimate model (6) using these two alternative subsamples of Suspect and Control firms and present the estimation results in Table 6. We only tabulate the results for the coefficients of interest, but the regressions include all the control variables, as well as industry and year fixed effects.

[Insert Table 6 About Here]

The results in Table 6 for both alternate identification strategies confirm the results reported in Table 3 for the primary identification strategy.. Using the opening level of goodwill

as an additional matching criteria leads to similar results: Suspect firms exhibit a greater association between enforcement and cash flow management relative to control firms (coefficient of *SUSPECT* × *ENF* is positive and significant at less than 1% for our three measures of cash flow management, two-sided tests).

Using the Ramanna and Watts (2012) identification strategy, our previously reported findings of a more positive association between abnormal cash flows and enforcement for Suspect firms relative to Control firms once again hold for all three measures of cash flow management (coefficient of *SUSPECT* × *ENF* is positive and significant at less than 1% for *CFM* and *OPCFM*, and at less than 10% for *FCFM*, two-sided tests).

Overall, the results of these alternate identification approaches confirm our core evidence that managers increase abnormal cash flows more to delay goodwill impairments in countries with stronger enforcement that present fewer opportunities to use aggressive valuation assumptions (H1).

*7.2. Alternate measures of enforcement*

We report that Suspect firms rely on cash flow management in order to support delayed recognition of goodwill impairment, and that such cash flow management is increasing in the level of enforcement. In our main tests, we proxy for enforcement using a well-established metric developed by the World Economic Forum (2010) that is a composite of enforcement of accounting standards, enforcement of securities laws, minority shareholder rights, and judicial independence.

We test the robustness of our results to using alternate metrics of enforcement. First, we use Brown et al. (2014)'s aggregate measure of the quality of the audit environment and the strength of enforcement of accounting standards (*AETOTAL*). Brown et al. (2014) identify two institutional factors that shape financial reporting quality, the quality of the audit environment and the enforcement of compliance with accounting standards. We argue that these two institutional factors are likely to influence whether managers delay recognition of goodwill impairment. Second, we replace the enforcement metric with the rule of law metric developed by Kaufman et al. (2010). This aggregate metric (*KAUF*), often referred to as "legal enforcement," is based on the perceptions of the extent to which market participants have confidence in and comply with the laws of society. Our last metric is based on La Porta et al. (2006)'s proxy for public enforcement (*LAP*).

We re-estimate model (6) after replacing our measure of enforcement (*ENF*) with each of *AETOTAL*, *KAUF*, and *LAP*. Table 7 reports the estimation results for each institutional variable and each cash flow management metric, separately. We only tabulate the results for the coefficients of interest, but the regressions include all the control variables, as well as industry and year fixed effects.

[Insert Table 7 About Here]

Table 6 indicates that the use of cash flow-increasing management by Suspect firms is increasing in the level of enforcement. We report a positive and significant $\beta_3$ that captures the incremental effect of enforcement on the use of cash flow increasing management by Suspect firms relative to Control firms in almost all the cases.

Overall, the results are consistent with the argument that better enforcement limits the use of unrealistic valuation assumptions by Suspect firms, and managers therefore rely relatively more on cash flow management to support delaying the recognition of goodwill impairment.

*7.3. Cross sectional tests based on incentives to delay goodwill impairment and on the level of enforcement*

If managers use more cash flow management to delay goodwill impairment as enforcement increases, then we should observe a lower association between cash flow management and enforcement for Suspect firms carrying less goodwill on their balance sheet, and vice versa. To test this prediction, we re-estimate model (6) on a subsample of firms with relatively small amounts of goodwill in their balance sheet. We define firms with relatively small amounts of goodwill as firms with goodwill that is less than 5% of total assets. We identify 486 Suspect firms and 486 Control firms in this subsample using our primary identification strategy (approximately 25% of the sample used for our primary identification strategy). We present the estimation results in Table 8 Panel A.

[Insert Table 8 About Here]

Panel A of Table 8 shows that our measure of enforcement is not positively related to the three proxies of cash flow increasing management by Suspects relative to Control firms ($\beta_3$ is insignificant for *CFM*, *OPCFM* and *FCFM*, two-sided tests). In the full sample, we report a positive and significant coefficient $\beta_3$ for our three proxies of cash flow increasing management (see Panel B of Table 3). These results are consistent with managers of firms with little goodwill

in their balance sheet having fewer incentives to use cash flow management to support delayed recognition of goodwill impairment.

We also reason that the incremental positive association between cash flow management and enforcement for Suspect firms relative to Control firms is likely to be lower as enforcement decreases. In other words if enforcement is below a certain threshold, given the costs associated with cash flow management, it is likely that firms do not need to use cash flow increasing management in order to delay a goodwill impairment as they can rely on manipulating valuation assumptions. Therefore, we expect a weaker or no relation in low enforcement countries. To test this conjecture, we re-estimate model (6) for firms in low enforcement countries (defined as countries with an enforcement level below the median of *ENF*, i.e., 22.3). Panel B of Table 5 presents the estimation results.

We find that in low enforcement countries the incremental association between Suspect firms and Control firms, i.e., the coefficient on *SUSPECT* × *ENF*, is not significant (two-sided tests) for any of the three measures of cash flow management. This finding is consistent with the argument that managers use cash flow management to delay goodwill impairment only when enforcement is above a relatively high threshold.

### *7.4. Financial crisis*

Because our sample period includes the 2008-09 financial crisis, it is possible that our reported findings are affected by this major external shock that significantly depressed asset prices and may have led firms to book unnecessary "market driven impairments" (Chen et al., 2017b). To rule out this explanation we re-estimate model (6) after excluding observations from fiscal years 2007 to 2009. The untabulated results when we exclude the financial crisis observations are similar to those reported earlier.

## 8. Conclusions

A growing body of empirical evidence suggests that goodwill impairments are not recorded in a timely manner (e.g., Hayn and Hughes, 2006; Li and Sloan, 2017). However, there are few studies that examine how managers achieve the delay in recognizing goodwill impairments. The timeliness of goodwill impairment recognition is important for market participants to monitor the performance of past M&As and to forecast the amount, uncertainty and timing of future cash flows associated with expected synergies and intangible assets. Under IFRS, managers test goodwill for impairment using value in use, i.e., the discounted expected future

cash flows of CGUs to which goodwill is allocated. Managers can either use aggressive valuation assumptions such as a low discount rate or increase the current level of cash flows so that projections of future cash flows are higher in order to delay recognizing goodwill impairments.

In this study, we explore how managers delay the recognition of economic goodwill impairments in their books and how institutional factors such as enforcement affect how managers accomplish avoiding the reporting of goodwill write-downs. Using international data, we find that the use of cash flow-increasing management by firms likely to delay goodwill impairment is influenced by the strength of enforcement. We find that enforcement is positively associated with the use of cash flow-increasing activities management for firms likely to delay the recognition of goodwill impairment. Using future stock returns and future impairments for Suspect firms, we find that engaging in cash flow management has a negative effect on future firm performance. We also argue that the greater use of cash flow management of cash flow management in high enforcement countries explains why impairments are not timelier in high enforcement countries relative to low enforcement countries.

We believe that our findings are relevant to investors for assessing the quality of past M&As and the persistence of cash flows, to regulators for enforcing accounting standards, and to standard setters for assessing the costs and benefits of the current impairment testing requirements for goodwill. Like all empirical work, our study is subject to a number of limitations. First, although we attempt to triangulate our findings through several identification strategies, an empirical challenge is identification of firms that are likely to delay goodwill impairments. Second, despite the use of different proxies of cash flow management to corroborate our core evidence, another potential limitation is the identification of cash flow management (e.g., Chen et al., 2017a).

## Appendix A - Variables definitions

| Variables | Definition | Source |
|---|---|---|
| $SUSPECT_t$ | An indicator variable that equals 1 for non-impairers matched to impairers in the same industry-year with the closest market-to-book, and 0 otherwise. | EIKON |
| *ENF* | Sum of the index values of the following proxies: enforcement of accounting standards, enforcement of securities laws, minority shareholder rights and judicial independence (World Economic Forum, 2010). | World Economic Forum |
| *HIGHENF* | An indicator variable that equals 1 if the enforcement metric (ENF) is above the median, and 0 otherwise. | World Economic Forum |
| $PROD_t$ | Cost of goods sold for fiscal year *t* plus change in inventories divided by lagged total assets adjusted for lagged goodwill. | EIKON |
| $DISX_t$ | Sum of R&D, advertising and SG&A expenditures for year *t* divided by lagged total assets adjusted for lagged goodwill. | EIKON |
| $CFO_t$ | Cash from operations for fiscal year *t* divided by lagged total assets adjusted for lagged goodwill. | EIKON |
| $CAPEX_t$ | Capital expenditure for fiscal year *t* divided by lagged total assets adjusted for lagged goodwill. | EIKON |
| $M_t$ | one of the following three cash flow management measures: $CFM_t$, $OPCFM_t$, $FCFM_t$. | EIKON |
| $CFM_t$ | Cash flow management through real activities management for fiscal year *t* measured as the sum of the residuals of models (1) and (2). | EIKON |
| $OPCFM_t$ | Operating cash flow management for year t measured as the residuals of model (3). | EIKON |
| $FCFM_t$ | Free cash flow management for fiscal year *t* measured as the sum of the residuals of models (3) and (4). | EIKON |
| $\Delta CCC_t$ / $\Delta CCC_{t+1}$ | Change in cash conversion cycle from year *t*-1 to year *t* (or from year *t* to year *t+1*). Cash conversion cycle (CCC) is measured as days of accounts receivable + days of inventories – days of account payable. Days of accounts receivable = $365\times[(AR_t + AR_{t-1})/2]/S$. Days of inventory = $365\times[(INV_t + INV_{t-1})/2]/CGS$. Days of account payable = $365\times[(PAY_t + PAY_{t-1})/2]/Purchases$. *Purchases* = *CGS* + change in *INV*. | EIKON |
| $\Delta REC_t$ | Change of days of account receivable from year t-1 to year *t*. | EIKON |
| $\Delta INV_t$ | Change of days of inventory from year *t*-1 to year *t*. | EIKON |
| $\Delta PAY_t$ | Change of days of account payable from year *t*-1 to year *t*. | EIKON |
| $RET_{t,\,t+1}$ | Stock return computed from the end of fiscal year *t* to the end of fiscal year *t+1*. | EIKON |
| $MB_t$ | Market-to-book ratio of equity at the end of fiscal year *t*. | EIKON |
| $SIZE_t$ | Natural logarithm of lagged total assets. | EIKON |
| $chREV_t$ | Change in sales for year *t* divided by lagged total assets adjusted for goodwill. | EIKON |
| $LEV_t$ | Total debt for fiscal year *t* divided by total equity. | EIKON |
| $ROA_t$ | Earnings before interest, taxes, depreciation and amortization for year *t* divided by total assets adjusted for goodwill. | EIKON |
| $BIG4_t$ | An indicator variable that equals 1 if the firm is audited by a Big 4 auditor (PwC, EY, Deloitte, or KPMG), and 0 otherwise. | EIKON |
| $COVERAGE_t$ | Number of analysts following the firm for fiscal year *t*. | EIKON |
| $DISSUE_t$ | An indicator variable that equals 1 if total debt increases by more than 30% for fiscal year *t*, and 0 otherwise. | EIKON |
| $EISSUE_t$ | An indicator variable that equals 1 if the par value of common equity increases by more than 30% for fiscal year *t*, and 0 otherwise.. | EIKON |

| | | |
|---|---|---|
| *GDPGR* | Percentage GDP growth rate for a country-year. | World Bank |
| $IMP_t / GW_{t-1}$ | Goodwill impairment recognized for fiscal year *t* divided by goodwill at the beginning of the year. | EIKON |
| $IMP_t / A_{t-1}$ | Goodwill impairment recognized for fiscal year *t* divided by lagged total assets. | EIKON |
| $GW_{t-1} / A_{t-1}$ | Amount of goodwill at the beginning of the year divided by lagged total assets. | EIKON |
| *AETOTAL* | Country aggregate value of the Brown et al. (2014) audit environment quality and enforcement of accounting standards index in 2008. | Brown et al. (2014) |
| *KAUF* | Rule of law index (Kaufmann et al., 2010). | Brown et al. (2014) |
| *LAP* | Total of public and private enforcement indices (La Porta et al., 2006). | Brown et al. (2014) |

## Appendix B - Illustration of the Association between Enforcement and Valuation Assumptions used in Goodwill Impairment Testing

From our list of Suspect firms, we choose two firms from the same industry-year group – one Suspect from a high enforcement country and one Suspect from a low enforcement country. We identify Suspect firms by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity. We select the two-digit SIC industry 20 (Food and Kindred products) in 2014 because it includes exactly one Suspect firm from Italy (low enforcement country) and one Suspect firm and from the UK (high enforcement country). We choose 2014 because it is the most recent year in our sample (the choice of this industry-year group was made prior to observing any valuation assumptions used).

Because these two firms are based in Europe and are from the same industry-year group, we can reasonably assume that they are subject to similar economic conditions and, therefore, should use relatively similar valuation assumptions.

We download the annual reports of the two firms and compared the information reported about goodwill impairment tests. Both firms test goodwill for impairment using the value-in-use approach, which is the most common approach permitted by IAS 36 (Amiraslani et al., 2013; Tsalavoutas et al., 2014). We focus on the discount rates used because it is an assumption that significantly influences the estimate of recoverable values. After some adjustments to compute a firm-level measure of discount rate, we obtain the information in Table B.1.

**Table B.1 – Discount rates employed in value-in-use estimates**

| | UK | Italy |
|---|---|---|
| Enforcement | 24.4 | 16.7 |
| Suspect firm discount rate | 7.07% | 5.55% |

The evidence in this industry-year group indicates that because Suspect firms in the UK use a greater discount rate than in Italy they appear to be more constrained in their use of aggressive valuation assumptions than Suspect firms in Italy. In other words, all else equal, Suspect firms in the UK need to have higher projected cash flows to support the same recoverable value than Italian Suspect firms.

Overall, this anecdotal evidence supports our argument on the role of enforcement for valuation assumptions used in goodwill impairment testing.

**Table B.2 - Information provided in Annual Reports and Adjustments**

| UK: Real Good Food PLC (Suspect firm) | | |
|---|---|---|
| | GDWL (£000) | Rate |
| Group's WACC used | 82,019 | 7.07% |
| Total | 82,019 | |
| Discount rate used | | 7.07% |
| **Italy: La Doria SpA (Suspect firm)** | | |
| | GDWL (€000) | Rate |
| Pomagro | 669 | 6.92% |
| Oriental & Pacific | 2,178 | 7.45% |
| Sanafrutta | 2,679 | 5.67% |
| Pafial | 9,732 | 5.00% |
| Total | 15,258 | |
| Goodwill-weighted average discount rate | | 5.55% |

**Appendix C - Examples of Auditors' and Regulators Attention to Impairment Tests**

*Orange SA, Annual Report, 2008, Emphasis added*

"We have considered that among the accounts that are subject to significant accounting judgment for which our assessments may be explained are those relating to *goodwill*, intangible and tangible assets, deferred tax assets and provisions for risks. We have notably: with respect to the above mentioned assets, assessed the data and the *assumptions on which the estimates* are based, and more specifically *cash flow projections* prepared by the company's operational management in the context described in note 6.2, reviewed calculations made by the company and the sensitivity of the main value in use, assessed the accounting principles and methods used to determine fair values, compared accounting estimates made for prior periods with actual results, and reviewed management approval procedures for these estimates."

*Carrefour SA, Annual Report, 2013, Emphasis Added*

"Your group has performed at year-end an *impairment test of goodwill* and also assessed whether there was any indication of impairment of other tangible and intangible assets, according to the methodology described in Note 2.6.4 to the Consolidated Financial Statements. *We have reviewed the methodology used* to conduct the impairment test and the identification of triggers of impairment, *the cash flow forecasts and assumptions used*, together with the information provided in Note 17 to the Consolidated Financial Statements. We have reviewed the calculations performed by your Group; we have compared previous periods' accounting estimates with actual results and reviewed Management's approval process of these estimates."

*Public Company Auditor Oversight Board*

"The issuer had prepared cash flow projections for one of the models used in its fair value determination for both interim and annual goodwill impairment analyses. In both analyses, the issuer forecasted significant growth rates in a new line of business. In evaluating these assumptions, the Firm inquired of management and considered the growth rates associated with another company's new product. The Firm, however, failed to assess whether the issuer would be able to achieve the significant growth it had projected. Also, during the year under audit, the issuer changed the weighting between the models it used in its fair value determination. The Firm, however, failed to perform procedures, beyond inquiry of management, to assess the appropriateness of the change in the weighting between these models. In addition, the issuer made both a five - year and an eight - year revenue projection as part of its annual goodwill impairment analysis and used lower discount rates in both

projections than it had used in its interim analysis. There was no evidence in the audit documentation, and no persuasive other evidence, that the Firm had evaluated the appropriateness of the discount rates used in the issuer's annual analysis, even though the issuer would have failed step one of the goodwill impairment test had it used the same discount rates that it had used in its interim goodwill impairment analysis. Also, the Firm accepted the issuer's assumed terminal growth rate used in its five - year projection, without further evaluation, despite the view of the Firm's internal specialist that the growth rate appeared somewhat high" (PCAOB, 2015).

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**Table 1 - Sample selection and description**

Panel A: Sample of firms from 36 countries with enforcement metrics and IFRS mandatory or allowed

| | N |
|---|---|
| Number of firms in EIKON | 14,943 |
| (-) Financial institutions and non-available SIC code | -3,059 |
| *(=) Number of listed firms* | *11,884* |
| (x8) Number of observations 2007-2014 | 95,072 |
| (-) Number of non-IFRS observations for three years | -40,195 |
| (-) Observations with unavailable data to compute metrics | -23,130 |
| (-) Observations with unavailable or negative *MB* and lagged *MB* | -3,420 |
| (-) Observations with unavailable control variables | -228 |
| *(=) Final number of observations* | *28,099* |

Panel B: Descriptive statistics

| Variables | N | Mean | StDev | P25 | Median | P75 |
|---|---|---|---|---|---|---|
| $PROD_t$ | 28,099 | 0.7513 | 0.6718 | 0.2951 | 0.5846 | 0.9981 |
| $DISX_t$ | 28,099 | 0.2851 | 0.2943 | 0.0843 | 0.1876 | 0.3813 |
| $CFO_t$ | 28,099 | 0.0705 | 0.1425 | 0.018 | 0.0768 | 0.1395 |
| $CAPEX_t$ | 28,099 | 0.0719 | 0.0777 | 0.0232 | 0.0481 | 0.0907 |
| $CFM_t$ | 28,099 | 0.0023 | 0.173 | -0.0842 | -0.0019 | 0.0867 |
| $OPCFM_t$ | 28,099 | 0.0073 | 0.1186 | -0.0488 | 0.0088 | 0.0689 |
| $FCFM_t$ | 28,099 | 0.0111 | 0.133 | -0.0501 | 0.0155 | 0.0833 |
| $\Delta CCC_t$ | 25,415 | 1.5337 | 118.9829 | -12.7724 | 0.7137 | 15.1930 |
| $\Delta REC_t$ | 25,415 | -0.0130 | 43.8557 | -7.2258 | -0.0444 | 7.3255 |
| $\Delta INV_t$ | 25,415 | 1.1176 | 52.5823 | -6.5044 | 0.1608 | 7.9877 |
| $\Delta PAY_t$ | 25,415 | -0.6868 | 104.0774 | -8.9456 | -0.0802 | 8.5605 |
| $RET_t$ | 28,099 | 0.1361 | 0.6753 | -0.2616 | 0.0105 | 0.3415 |
| $MB_t$ | 28,099 | 1.9829 | 2.2004 | 0.762 | 1.3049 | 2.3208 |
| $SIZE_t$ | 28,099 | 5.4765 | 2.1065 | 3.989 | 5.2728 | 6.8743 |
| $chREV_t$ | 28,099 | 0.0761 | 0.2899 | -0.0469 | 0.0393 | 0.1654 |
| $LEV_t$ | 28,099 | 0.6935 | 1.0237 | 0.1008 | 0.392 | 0.8465 |
| $ROA_t$ | 28,099 | 0.1083 | 0.1545 | 0.0497 | 0.1078 | 0.1798 |
| $BIG4_t$ | 28,099 | 0.496 | 0.5 | 0.0000 | 0.0000 | 1.0000 |
| $COVERAGE_t$ | 28,099 | 5.0367 | 7.6907 | 0.0000 | 1.0000 | 7.0000 |
| $DISSUE_t$ | 28,099 | 0.3656 | 0.4816 | 0.0000 | 0.0000 | 1.0000 |
| $EISSUE_t$ | 28,099 | 0.197 | 0.3978 | 0.0000 | 0.0000 | 0.0000 |
| $GW_t/A_{t-1}$ | 17,040 | 0.1346 | 0.1447 | 0.0211 | 0.0807 | 0.2046 |

See Appendix A for definition of variables. Total assets are adjusted for goodwill balance. All continuous variables are winsorized at the 1st and 99th percentiles.

Panel C: Breakdown of observations according to goodwill and impairment

| | N | Pct |
|---|---|---|
| with goodwill in *t-1* and impairment in *t* | 2,317 | 8.25% |
| with goodwill in *t-1* and NO impairment in *t* | 14,723 | 52.40% |
| with NO goodwill in *t-1* and impairment in *t* | 189 | 0.67% |
| with NO goodwill in *t-1* and NO impairment in *t* | 10,870 | 38.68% |
| (=) Total | 28,099 | 100.00% |

## Table 2 - Enforcement and impairment of goodwill

Panel A: Country level of enforcement and distribution of impairment by country and by year

| Country (Code) | ENF | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | *Total* | | *Pct.* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | Imp. | N | Imp. | N | Imp. | N | Imp. | N | Imp. | N | Imp. | N | Imp. | N | Imp. | *N* | *Imp.* | *N* | *Imp.* |
| Argentina (AR) | 14.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 21 | 0 | 33 | 1 | *58* | *1* | *0.2%* | *0.0%* |
| Australia (AU) | 24.7 | 322 | 21 | 364 | 33 | 379 | 60 | 393 | 33 | 425 | 50 | 420 | 47 | 389 | 35 | 343 | 18 | *3035* | *297* | *10.8%* | *11.9%* |
| Austria (AT) | 24.0 | 19 | 6 | 21 | 7 | 22 | 11 | 32 | 7 | 40 | 7 | 37 | 7 | 35 | 6 | 34 | 8 | *240* | *59* | *0.9%* | *2.4%* |
| Belgium (BE) | 23.0 | 48 | 8 | 50 | 7 | 55 | 6 | 57 | 8 | 49 | 8 | 51 | 5 | 46 | 3 | 45 | 4 | *401* | *49* | *1.4%* | *2.0%* |
| Brazil (BR) | 18.0 | 0 | 0 | 2 | 0 | 3 | 2 | 46 | 5 | 83 | 7 | 108 | 3 | 118 | 4 | 115 | 4 | *475* | *25* | *1.7%* | *1.0%* |
| Canada (CA) | 24.1 | 0 | 0 | 1 | 0 | 1 | 0 | 6 | 0 | 11 | 0 | 266 | 2 | 369 | 7 | 350 | 4 | *1004* | *13* | *3.6%* | *0.5%* |
| Chile (CL) | 21.0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 63 | 4 | 71 | 3 | 94 | 2 | 84 | 1 | *337* | *10* | *1.2%* | *0.4%* |
| Czech Republic(CZ) | 18.1 | 3 | 0 | 4 | 1 | 4 | 2 | 4 | 1 | 6 | 1 | 4 | 1 | 6 | 1 | 4 | 1 | *35* | *8* | *0.1%* | *0.3%* |
| Denmark (DK) | 23.8 | 57 | 9 | 61 | 11 | 63 | 17 | 62 | 3 | 64 | 5 | 57 | 6 | 52 | 0 | 49 | 2 | *465* | *53* | *1.7%* | *2.1%* |
| Finland (FI) | 24.4 | 64 | 8 | 65 | 14 | 65 | 13 | 69 | 10 | 68 | 7 | 71 | 11 | 68 | 8 | 63 | 5 | *533* | *76* | *1.9%* | *3.0%* |
| France (FR) | 22.4 | 247 | 40 | 270 | 58 | 281 | 69 | 286 | 58 | 273 | 54 | 263 | 46 | 275 | 37 | 243 | 31 | *2138* | *393* | *7.6%* | *15.7%* |
| Germany (DE) | 25.0 | 208 | 25 | 218 | 35 | 226 | 44 | 256 | 36 | 246 | 30 | 245 | 25 | 255 | 34 | 244 | 27 | *1898* | *256* | *6.8%* | *10.2%* |
| Hong Kong (HK) | 23.9 | 34 | 3 | 58 | 4 | 65 | 7 | 87 | 6 | 119 | 6 | 158 | 7 | 163 | 10 | 176 | 14 | *860* | *57* | *3.1%* | *2.3%* |
| Hungary (HU) | 19.3 | 10 | 0 | 13 | 2 | 13 | 2 | 14 | 1 | 15 | 5 | 10 | 1 | 11 | 0 | 8 | 1 | *94* | *12* | *0.3%* | *0.5%* |
| Ireland (IE) | 24.0 | 8 | 2 | 8 | 1 | 11 | 2 | 13 | 1 | 12 | 3 | 12 | 2 | 12 | 0 | 12 | 0 | *88* | *11* | *0.3%* | *0.4%* |
| Italy (IT) | 16.7 | 105 | 9 | 113 | 17 | 122 | 15 | 129 | 16 | 120 | 16 | 108 | 7 | 125 | 7 | 119 | 7 | *941* | *94* | *3.3%* | *3.8%* |
| Japan (JP) | 21.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 0 | 9 | 0 | *17* | *0* | *0.1%* | *0.0%* |
| Jordan (JO) | 20.9 | 44 | 1 | 54 | 1 | 55 | 1 | 63 | 0 | 59 | 0 | 56 | 0 | 48 | 0 | 40 | 0 | *419* | *3* | *1.5%* | *0.1%* |
| Malaysia (MY) | 22.0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 6 | 0 | 7 | 1 | 225 | 10 | 354 | 24 | *595* | *36* | *2.1%* | *1.4%* |
| Mexico (MX) | 17.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 10 | 0 | 57 | 1 | 61 | 1 | *130* | *2* | *0.5%* | *0.1%* |
| Morocco (MA) | 16.9 | 1 | 0 | 2 | 0 | 5 | 0 | 4 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | *19* | *0* | *0.1%* | *0.0%* |
| Netherlands (NL) | 23.9 | 46 | 8 | 46 | 12 | 46 | 10 | 48 | 7 | 40 | 7 | 47 | 10 | 49 | 3 | 50 | 5 | *372* | *62* | *1.3%* | *2.5%* |
| Norway (NO) | 25.1 | 41 | 5 | 51 | 9 | 59 | 10 | 64 | 13 | 52 | 4 | 57 | 4 | 67 | 6 | 62 | 8 | *453* | *59* | *1.6%* | *2.4%* |
| Pakistan (PK) | 17.4 | 7 | 0 | 6 | 0 | 6 | 0 | 8 | 1 | 12 | 2 | 7 | 0 | 8 | 1 | 8 | 0 | *62* | *4* | *0.2%* | *0.2%* |
| Peru (PE) | 16.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 30 | 0 | 23 | 0 | 21 | 0 | *77* | *0* | *0.3%* | *0.0%* |
| Poland (PL) | 17.1 | 108 | 7 | 153 | 9 | 171 | 9 | 197 | 18 | 206 | 12 | 198 | 10 | 201 | 7 | 191 | 7 | *1425* | *79* | *5.1%* | *3.2%* |
| Russia (RU) | 12.8 | 19 | 1 | 27 | 5 | 36 | 4 | 36 | 1 | 44 | 2 | 55 | 5 | 78 | 5 | 72 | 3 | *367* | *26* | *1.3%* | *1.0%* |
| Slovenia (SI) | 17.3 | 13 | 0 | 12 | 2 | 9 | 1 | 12 | 2 | 7 | 1 | 10 | 0 | 10 | 0 | 7 | 0 | *80* | *6* | *0.3%* | *0.2%* |
| South Africa (ZA) | 23.5 | 72 | 13 | 76 | 16 | 89 | 22 | 97 | 17 | 97 | 18 | 100 | 20 | 94 | 18 | 90 | 13 | *715* | *137* | *2.5%* | *5.5%* |
| South Korea (KR) | 21.6 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 43 | 0 | 1051 | 12 | 1172 | 16 | 1211 | 16 | *3487* | *44* | *12.4%* | *1.8%* |
| Spain (ES) | 18.6 | 67 | 7 | 74 | 8 | 76 | 8 | 77 | 9 | 79 | 14 | 61 | 6 | 69 | 9 | 65 | 8 | *568* | *69* | *2.0%* | *2.8%* |
| Sweden (SE) | 25.1 | 130 | 8 | 138 | 12 | 140 | 18 | 156 | 18 | 157 | 18 | 139 | 11 | 144 | 11 | 130 | 8 | *1134* | *104* | *4.0%* | *4.2%* |
| Switzerland (CH) | 23.6 | 77 | 11 | 78 | 15 | 72 | 10 | 84 | 6 | 60 | 7 | 73 | 10 | 75 | 4 | 69 | 5 | *588* | *68* | *2.1%* | *2.7%* |
| Turkey (TR) | 19.0 | 160 | 7 | 164 | 4 | 166 | 7 | 168 | 8 | 160 | 5 | 161 | 3 | 153 | 0 | 146 | 1 | *1278* | *35* | *4.5%* | *1.4%* |
| Ukraine (UA) | 12.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 18 | 0 | *25* | *0* | *0.1%* | *0.0%* |
| UK (GB) | 24.4 | 264 | 23 | 371 | 51 | 481 | 65 | 500 | 45 | 498 | 49 | 526 | 42 | 526 | 45 | 520 | 38 | *3686* | *358* | *13.1%* | *14.3%* |
| *Total* | | *2,176* | *222* | *2,500* | *334* | *2,721* | *415* | *3,005* | *331* | *3,124* | *342* | *4,476* | *307* | *5,050* | *290* | *5,047* | *265* | *28,099* | *2,506* | *100.0%* | *100.0%* |
| *Pct.* | | *7.7%* | *8.9%* | *8.9%* | *13.3%* | *9.7%* | *16.6%* | *10.7%* | *13.2%* | *11.1%* | *13.6%* | *15.9%* | *12.3%* | *18.0%* | *11.6%* | *18.0%* | *10.6%* | *100.0%* | *100.0%* | | |

Panel B: Descriptive statistics for the subsample of observations with goodwill in fiscal year *t*-1 and impairment in fiscal year *t*

| Variables | N | Mean | StDev | Min | P25 | Median | P75 | Max |
|---|---|---|---|---|---|---|---|---|
| $IMP_t/GW_{t-1}$ | 2,317 | 0.2194 | 0.3319 | 0.0000 | 0.0152 | 0.0669 | 0.2625 | 1.6716 |
| $IMP_t/A_{t-1}$ | 2,317 | 0.0271 | 0.0540 | 0.0000 | 0.0012 | 0.0051 | 0.0240 | 0.3226 |
| $GW_{t-1}/A_{t-1}$ | 2,317 | 0.1645 | 0.1476 | 0.0000 | 0.0447 | 0.1226 | 0.2451 | 0.6342 |

Panel C: Descriptive statistics by number of impairments in the last three years (only firms with impairment in fiscal year *t* and goodwill in fiscal year *t*-1 are included)

| | N | Pct. | Mean | St. Dev | P25 | Median | P75 |
|---|---|---|---|---|---|---|---|
| #Impairments in the last three years = 1 | | | | | | | |
| $IMP_t/GW_{t-1}$ | 1,056 | 45.58% | 0.2706 | 0.3597 | 0.0237 | 0.1123 | 0.3354 |
| $IMP_t/A_{t-1}$ | | | 0.0336 | 0.0586 | 0.0018 | 0.0083 | 0.0349 |
| $GW_{t-1}/A_{t-1}$ | | | 0.1686 | 0.1551 | 0.0431 | 0.1229 | 0.2467 |
| #Impairments in the last three years = 2 | | | | | | | |
| $IMP_t/GW_{t-1}$ | 753 | 32.50% | 0.2125 | 0.3242 | 0.0144 | 0.0603 | 0.2409 |
| $IMP_t/A_{t-1}$ | | | 0.0267 | 0.0564 | 0.0012 | 0.0043 | 0.0202 |
| $GW_{t-1}/A_{t-1}$ | | | 0.1574 | 0.1445 | 0.0414 | 0.1190 | 0.2309 |
| #Impairments in the last three years = 3 | | | | | | | |
| $IMP_t/GW_{t-1}$ | 508 | 21.92% | 0.1232 | 0.2513 | 0.0069 | 0.0310 | 0.1136 |
| $IMP_t/A_{t-1}$ | | | 0.0141 | 0.0347 | 0.0006 | 0.0027 | 0.0110 |
| $GW_{t-1}/A_{t-1}$ | | | 0.1665 | 0.1355 | 0.0518 | 0.1349 | 0.2525 |
| *Total* | *2,317* | *100.00%* | | | | | |

**Table 3 - Enforcement and cash flow management to delay goodwill impairment**

Panel A: Delaying goodwill impairment: Evidence of cash flow management for Suspect firms

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 MB_t + \beta_3 SIZE_{t-1} + \beta_4 chREV_t + \beta_5 LEV_t + \beta_6 BIG4_t + \beta_7 COVERAGE_t + \beta_8 DISSUE_t + \beta_9 EISSUE_t + \beta_{10} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | 0.0005 | | 0.03 | -0.0139 | | -1.26 | 0.0013 | | 0.11 |
| $SUSPECT_t$ | 0.0207 | *** | 3.84 | 0.0168 | *** | 5.38 | 0.0128 | *** | 3.85 |
| $MB_t$ | 0.0138 | *** | 5.75 | 0.0142 | *** | 10.17 | 0.0114 | *** | 7.75 |
| $SIZE_t$ | 0.0024 | | 1.15 | 0.0046 | *** | 3.75 | 0.0070 | *** | 5.41 |
| $chREV_t$ | -0.0898 | *** | -8.92 | -0.0173 | *** | -2.95 | 0.0019 | | 0.31 |
| $LEV_t$ | -0.0051 | ** | -1.98 | -0.0077 | *** | -5.13 | -0.0078 | *** | -4.94 |
| $BIG4_t$ | -0.0103 | * | -1.85 | 0.0001 | | 0.02 | -0.0015 | | -0.45 |
| $COVERAGE_t$ | 0.0006 | | 1.24 | 0.0007 | *** | 2.68 | 0.0002 | | 0.84 |
| $DISSUE_t$ | -0.0096 | * | -1.66 | -0.0010 | | -0.29 | -0.0120 | *** | -3.37 |
| $EISSUE_t$ | -0.0071 | | -0.99 | -0.0187 | *** | -4.49 | -0.0230 | *** | -5.22 |
| $GDPGR_t$ | -0.0034 | ** | -2.36 | -0.0008 | | -0.99 | -0.0020 | ** | -2.28 |
| Year fixed effects | Included | | | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | | Included | | |
| Adj R-Sq | 0.0352 | | | 0.0839 | | | 0.0816 | | |
| N | 3,916 | | | 3,916 | | | 3,916 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity. $M_t$ is $CFM_t$, $OPCFM_t$, or $FCFM_t$.
See Appendix A for definition of variables.

Panel B: Delaying goodwill impairment: The effect of enforcement on cash flow management

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | 0.1283 | *** | 3.12 | 0.0741 | *** | 3.10 | 0.0910 | *** | 3.60 |
| $SUSPECT_t$ | -0.1548 | *** | -3.38 | -0.0854 | *** | -3.21 | -0.0892 | *** | -3.17 |
| $ENF$ | -0.0055 | *** | -3.60 | -0.0038 | *** | -4.22 | -0.0038 | *** | -4.05 |
| $SUSPECT_t \times ENF$ | 0.0077 | *** | 3.84 | 0.0044 | *** | 3.84 | 0.0044 | *** | 3.62 |
| $MB_t$ | 0.0141 | *** | 5.87 | 0.0144 | *** | 10.34 | 0.0117 | *** | 7.91 |
| $SIZE_t$ | 0.0019 | | 0.89 | 0.0041 | *** | 3.28 | 0.0064 | *** | 4.91 |
| $chREV_t$ | -0.0904 | *** | -8.99 | -0.0175 | *** | -3.00 | 0.0017 | | 0.27 |
| $LEV_t$ | -0.0054 | ** | -2.09 | -0.0079 | *** | -5.31 | -0.0081 | *** | -5.12 |
| $BIG4_t$ | -0.0099 | * | -1.74 | 0.0009 | | 0.28 | -0.0006 | | -0.18 |
| $COVERAGE_t$ | 0.0007 | | 1.48 | 0.0009 | *** | 3.05 | 0.0004 | | 1.24 |
| $DISSUE_t$ | -0.0096 | * | -1.66 | -0.0010 | | -0.30 | -0.0120 | *** | -3.38 |
| $EISSUE_t$ | -0.0060 | | -0.83 | -0.0178 | *** | -4.29 | -0.0221 | *** | -5.02 |
| $GDPGR_t$ | -0.0030 | ** | -2.06 | -0.0006 | | -0.71 | -0.0018 | ** | -2.01 |
| Year fixed effects | Included | | | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | | Included | | |
| Adj $R^2$ | 0.0387 | | | 0.0879 | | | 0.0852 | | |
| N | 3,916 | | | 3,916 | | | 3,916 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

**Table 4 - Delaying goodwill impairment: Change in the cash conversion cycle**

Panel A: Enforcement and change in the cash conversion cycle to delay goodwill impairment

$$\Delta CCC_t / \Delta CCC_{t+1} = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | $\Delta CCC_t$ | | | $\Delta CCC_{t+1}$ | | |
|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | -38.2925 | | -1.49 | 59.7817 | ** | 2.00 |
| $SUSPECT_t$ | 82.9426 | *** | 2.90 | -61.1041 | * | -1.85 |
| $ENF$ | 1.6162 | * | 1.68 | -1.4829 | * | -1.33 |
| $SUSPECT_t \times ENF$ | -3.5761 | *** | -2.87 | 2.5967 | * | 1.81 |
| $MB_t$ | -0.1661 | | -0.11 | -0.9397 | | -0.52 |
| $SIZE_t$ | -1.2295 | | -0.93 | 0.7840 | | 0.51 |
| $chREV_t$ | -42.2380 | *** | -6.89 | 8.0685 | | 1.15 |
| $LEV_t$ | -1.5524 | | -0.98 | -5.1179 | *** | -2.80 |
| $BIG4_t$ | 2.9713 | | 0.84 | -2.3971 | | -0.58 |
| $COVERAGE_t$ | 0.3139 | | 1.04 | -0.2313 | | -0.66 |
| $DISSUE_t$ | 0.1043 | | 0.03 | 0.1885 | | 0.05 |
| $EISSUE_t$ | -2.9503 | | -0.66 | 8.4727 | | 1.62 |
| $GDPGR_t$ | 1.5630 | * | 1.73 | 1.4787 | | 1.43 |
| Year fixed effects | | Included | | | Included | |
| Industry fixed effects | | Included | | | Included | |
| Adj R-Sq | 0.0081 | | | 0.0879 | | |
| N | 3,596 | | | 3,084 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

Panel B: Enforcement and the change in the component of the cash conversion cycle

$$\Delta REC_t / \Delta INV_t / \Delta PAY_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | $\Delta REC_t$ | | | $\Delta INV_t$ | | | $\Delta PAY_t$ | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | 2.07937 | | 0.23855 | 14.2728 | | 1.18741 | 74.4074 | ** | 2.18831 |
| $SUSPECT_t$ | 3.61783 | | 0.37354 | -20.939 | | -1.5678 | -72.523 | * | -1.9196 |
| $ENF$ | -0.0691 | | -0.2123 | -0.2704 | | -0.6029 | -2.7834 | ** | -2.1939 |
| $SUSPECT_t \times ENF$ | -0.1777 | | -0.4216 | 0.82116 | | 1.41326 | 3.29382 | ** | 2.00399 |
| $MB_t$ | -0.0206 | | -0.0402 | 0.80241 | | 1.13669 | 3.02136 | | 1.51304 |
| $SIZE_t$ | -0.1912 | | -0.4265 | -0.2751 | | -0.4449 | 1.6863 | | 0.96405 |
| $chREV_t$ | -43.098 | *** | -20.771 | -39.109 | *** | -13.669 | -50.898 | *** | -6.2885 |
| $LEV_t$ | -0.0471 | | -0.0875 | -0.4401 | | -0.5926 | -1.0719 | | -0.5102 |
| $BIG4_t$ | -0.3608 | | -0.3026 | -0.8039 | | -0.489 | -6.7754 | | -1.4569 |
| $COVERAGE_t$ | 0.07566 | | 0.74103 | -0.0062 | | -0.0437 | -0.2028 | | -0.5092 |
| $DISSUE_t$ | 1.70752 | | 1.41371 | 0.08179 | | 0.0491 | 0.59612 | | 0.12652 |
| $EISSUE_t$ | 4.96764 | *** | 3.26868 | 1.06495 | | 0.50815 | 14.8557 | ** | 2.50586 |
| $GDPGR_t$ | 0.54146 | * | 1.76792 | 0.35126 | | 0.83169 | -0.7672 | | -0.6421 |
| Year fixed effects | Included | | | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | | Included | | |
| Adj R-Sq | 0.119 | | | 0.058 | | | 0.013 | | |
| N | 3596 | | | 3596 | | | 3596 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

**Table 5 - Consequences of cash flow management to delay goodwill impairment**

Panel A: The effect of enforcement on the association between delaying goodwill impairmentsand future stock returns

$RET_{t,\ t+1\ or\ t+2} = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 SIZE + \beta_5 MB$ + Year fixed effects + Industry fixed effects + ε

| | Contemporaneous stock returns | | | | Next 12 months | | | | Next 24 months | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | t-stat | Coeff. | t-stat | Coeff. | t-stat | Coeff. | t-stat | Coeff. | t-stat | Coeff. | t-stat |
| Intercept | -0.0411 | -0.29 | 0.0080 | 0.06 | -0.4802 *** | -2.77 | -0.2064 | -1.17 | -0.6124 ** | -2.04 | -0.0051 | -0.02 |
| $SUSPECT_t$ | 0.1209 | 0.70 | -0.0155 | -0.10 | 0.3986 * | 1.92 | 0.4081 ** | 2.00 | 0.6600 * | 1.84 | 0.6380 * | 1.83 |
| *ENF* | 0.0080 | 1.41 | -0.0027 | -0.53 | 0.0269 *** | 3.91 | 0.0289 *** | 4.26 | 0.0480 *** | 4.03 | 0.0500 *** | 4.32 |
| $SUSPECT_t \times ENF$ | -0.0047 | -0.63 | -0.0002 | -0.03 | -0.0196 ** | -2.17 | -0.0207 ** | -2.33 | -0.0327 ** | -2.10 | -0.0332 ** | -2.20 |
| $MB_t$ | | | -0.0323 *** | -7.24 | | | -0.0216 *** | -3.73 | | | -0.0429 *** | -4.38 |
| $SIZE_t$ | | | 0.2113 *** | 27.08 | | | -0.1014 *** | -9.73 | | | -0.2221 *** | -12.18 |
| Year fixed effects | Included | | Included | | Included | | Included | | Included | | Included | |
| Industry fixed effects | Included | | Included | | Included | | Included | | Included | | Included | |
| Adj R-Sq | 0.136 | | 0.275 | | 0.098 | | 0.129 | | 0.085 | | 0.140 | |
| N | 3,916 | | 3,916 | | 3,385 | | 3,385 | | 2,872 | | 2,872 | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

Panel B: The effect of enforcement on the association between delaying goodwill impairmentin *t* and probability of future impairment in *t*+1 and/or *t*+2

$$\Pr(DIMP_{t+1/t+2}=1) = \alpha_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 RET_{t+1/t+2} + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | Impairment next 12 months | | | Impairment next 24 months | | |
|---|---|---|---|---|---|---|
| Variable | Coeff. | | z-value | Coeff. | | z-value |
| Intercept | 0.8530 | | 1.64 | 0.6142 | | 1.10 |
| $SUSPECT_t$ | -4.2977 | *** | -5.39 | -3.5110 | *** | -4.69 |
| $ENF$ | -0.0539 | *** | -2.68 | -0.0356 | | -1.63 |
| $SUSPECT_t \times ENF$ | 0.1117 | *** | 3.23 | 0.0888 | *** | 2.74 |
| $RET_{t+n}$ | -0.1203 | ** | -2.04 | 0.0040 | | 0.82 |
| Year fixed effects | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | |
| Pseudo $R^2$ | 0.2001 | | | 0.1741 | | |
| N | 3,410 | | | 2,915 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

Panel C: Association between enforcement and timeliness of goodwill impairment

$$\Pr(DIMP_t=1) = \alpha_0 + \beta_1 RET_t + \beta_2 RET_{t-1} + \beta_3 RET_{t-2} + \beta_4 RET_{t-3} + \beta_5 HIGHENF + \beta_6 RET_t \times HIGHENF + \beta_7 RET_{t-1} \times HIGHENF + \beta_8 RET_{t-2} \times HIGHENF + \beta_9 RET_{t-3} \times HIGHENF + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| Variable | Coeff. | | z-value | Coeff. | | z-value | Coeff. | | z-value |
|---|---|---|---|---|---|---|---|---|---|
| Intercept | -2.1988 | *** | -16.44 | -2.7195 | *** | -17.28 | -2.6913 | *** | -16.93 |
| $RET_t$ | -0.4629 | *** | -8.90 | -0.4796 | *** | -9.13 | -0.6277 | *** | -3.48 |
| $RET_{t-1}$ | -0.2551 | *** | -5.56 | -0.2584 | *** | -5.60 | -0.3504 | ** | -2.43 |
| $RET_{t-2}$ | -0.1996 | *** | -4.86 | -0.1954 | *** | -4.73 | -0.3596 | *** | -2.91 |
| $RET_{t-3}$ | -0.1442 | *** | -3.96 | -0.1412 | *** | -3.85 | -0.2535 | ** | -2.22 |
| *HIGHENF* | | | | 0.5501 | *** | 6.36 | 0.5094 | *** | 5.60 |
| $RET_t \times HIGHENF$ | | | | | | | 0.1636 | | 0.88 |
| $RET_{t-1} \times HIGHENF$ | | | | | | | 0.1011 | | 0.67 |
| $RET_{t-2} \times HIGHENF$ | | | | | | | 0.1822 | | 1.41 |
| $RET_{t-3} \times HIGHENF$ | | | | | | | 0.1253 | | 1.06 |
| Pseudo $R^2$ | 0.0520 | | | 0.0573 | | | 0.0577 | | |
| N | 14,999 | | | 14,999 | | | 14,999 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Panel C presents estimation results of a logistic model.
See Appendix A for definition of variables.

**Table 6 - Enforcement and delaying goodwill impairments: Alternate identification strategies**

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_t + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| *Matching by industry, year, level of goodwill and market-to-book ratio of equity* | | | | | | | | | |
| $SUSPECT_t$ | -0.1350 | *** | -2.76 | -0.0672 | ** | -2.29 | -0.0788 | ** | -2.50 |
| *ENF* | -0.0048 | *** | -2.92 | -0.0028 | *** | -2.84 | -0.0029 | *** | -2.72 |
| $SUSPECT_t \times ENF$ | 0.0064 | *** | 2.98 | 0.0033 | *** | 2.58 | 0.0038 | *** | 2.78 |
| Adj $R^2$ | 0.0442 | | | 0.0540 | | | 0.0547 | | |
| N | 2,960 | | | 2,960 | | | 2,960 | | |
| *Market-to-book ratio of equity <1 for two consecutive years* | | | | | | | | | |
| $SUSPECT_t$ | -0.2133 | *** | -3.94 | -0.0955 | *** | -3.04 | -0.0589 | * | -1.68 |
| *ENF* | -0.0083 | *** | -3.71 | -0.0041 | *** | -3.13 | -0.0032 | ** | -2.20 |
| $SUSPECT_t \times ENF$ | 0.0097 | *** | 4.08 | 0.0044 | *** | 3.24 | 0.0028 | * | 1.81 |
| Adj $R^2$ | 0.0648 | | | 0.0607 | | | 0.0550 | | |
| N | 4,139 | | | 4,139 | | | 4,139 | | |

***, **, and * denote significance (two– tailed) at the 0.01, 0.05, and 0.10 levels, respectively.

All control variables, industry and year fixed effects are included in the regression but are not tabulated.
In the top of the table Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year group based on the level of goodwill and the market-to-book ratio of equity. Matched impairers serve as the Control group.
In the bottom of the table Suspect firms are identified as non-impairers that exhibit a market-to-book ratio below one for two consecutive years. Impairers with a market-to-book below one for two consecutive years are used as the Control group.
See Appendix A for definition of variables.

**Table 7 - Alternative measures of enforcement and delaying goodwill impairments using cash flow management**

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 AUDIT + \beta_3 SUSPECT_t \times ENF\_PROXY + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| *Aggregate value of audit environment quality and enforcement of accounting standards from Brown et al. (2014)* | | | | | | | | | |
| $SUSPECT_t$ | -0.0377 | | -1.64 | -0.0088 | | -0.66 | -0.0074 | | -0.53 |
| *AETOTAL* | -0.0005 | | -1.17 | -0.0001 | | -0.56 | 0.0000 | | 0.15 |
| $SUSPECT_t \times AETOTAL$ | 0.0014 | *** | 2.64 | 0.0006 | ** | 2.00 | 0.0005 | | 1.50 |
| Adj $R^2$ | 0.0367 | | | 0.0848 | | | 0.0824 | | |
| N | 3,916 | | | 3,916 | | | 3,916 | | |
| *Rule of law metric from Kaufman et al. (2010)* | | | | | | | | | |
| $SUSPECT_t$ | -0.0146 | | -1.14 | 0.0044 | | 0.59 | -0.0011 | | -0.14 |
| *KAUF* | -0.0110 | * | -1.68 | -0.0068 | * | -1.78 | -0.0050 | | -1.25 |
| $SUSPECT_t \times KAUF$ | 0.0267 | *** | 3.06 | 0.0092 | * | 1.81 | 0.0104 | * | 1.94 |
| Adj $R^2$ | 0.0371 | | | 0.0843 | | | 0.0820 | | |
| N | 3,916 | | | 3,916 | | | 3,916 | | |
| *Total of public and private enforcement indices from La Porta et al. (2006)* | | | | | | | | | |
| $SUSPECT_t$ | 0.0120 | | 0.71 | -0.0063 | | -0.64 | -0.0118 | | -1.13 |
| *LAP* | 0.0214 | | 1.03 | 0.0118 | | 0.97 | 0.0114 | | 0.88 |
| $SUSPECT_t \times LAP$ | 0.0197 | | 0.68 | 0.0438 | *** | 2.59 | 0.0470 | *** | 2.63 |
| Adj $R^2$ | 0.0446 | | | 0.0928 | | | 0.0878 | | |
| N | 3,702 | | | 3,702 | | | 3,702 | | |

***, **, and * denote significance (two–tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Control variables, industry and year fixed effects are included in the regressions, but are not tabulated.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

**Table 8 - Cash flow management in settings with limited incentives to delay goodwill impairment using cash flows**

Panel A: Delaying goodwill impairments and cash flow management for firms with Goodwill below 5% of total assets

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | 0.1904 | ** | 2.47 | 0.1426 | *** | 3.08 | 0.1444 | *** | 2.77 |
| $SUSPECT_t$ | -0.0984 | | -1.38 | -0.0659 | | -1.54 | -0.0702 | | -1.45 |
| $ENF$ | -0.0065 | *** | -2.71 | -0.0032 | ** | -2.22 | -0.0027 | * | -1.68 |
| $SUSPECT_t \times ENF$ | 0.0048 | | 1.50 | 0.0029 | | 1.50 | 0.0029 | | 1.34 |
| $MB_t$ | 0.0122 | ** | 2.47 | 0.0164 | *** | 5.53 | 0.0143 | *** | 4.26 |
| $SIZE_t$ | 0.0033 | | 0.88 | 0.0024 | | 1.06 | 0.0045 | * | 1.78 |
| $chREV_t$ | -0.0775 | *** | -3.86 | -0.0170 | | -1.41 | -0.0024 | | -0.18 |
| $LEV_t$ | -0.0084 | * | -1.91 | -0.0120 | *** | -4.56 | -0.0129 | *** | -4.34 |
| $BIG4_t$ | -0.0070 | | -0.68 | 0.0011 | | 0.18 | -0.0008 | | -0.12 |
| $COVERAGE_t$ | 0.0002 | | 0.24 | 0.0011 | ** | 2.00 | 0.0002 | | 0.35 |
| $DISSUE_t$ | -0.0172 | * | -1.71 | 0.0002 | | 0.03 | -0.0189 | *** | -2.77 |
| $EISSUE_t$ | -0.0084 | | -0.66 | -0.0059 | | -0.78 | -0.0049 | | -0.56 |
| $GDPGR_t$ | -0.0064 | *** | -2.63 | -0.0022 | | -1.49 | -0.0019 | | -1.18 |
| Year fixed effects | Included | | | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | | Included | | |
| Adj $R^2$ | 0.0365 | | | 0.0927 | | | 0.0835 | | |
| N | 972 | | | 972 | | | 972 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
See Appendix A for definition of variables.

Panel B: Delaying goodwill impairments and cash flow management in low enforcement countries

$$M_t = \beta_0 + \beta_1 SUSPECT_t + \beta_2 ENF + \beta_3 SUSPECT_t \times ENF + \beta_4 MB_t + \beta_5 SIZE_{t-1} + \beta_6 chREV_t + \beta_7 LEV_t + \beta_8 BIG4_t + \beta_9 COVERAGE_t + \beta_{10} DISSUE_t + \beta_{11} EISSUE_t + \beta_{12} GDPGR_t + \text{Year fixed effects} + \text{Industry fixed effects} + \varepsilon$$

| | *CFM* | | | *OPCFM* | | | *FCFM* | | |
|---|---|---|---|---|---|---|---|---|---|
| Variable | Coeff. | | t-stat | Coeff. | | t-stat | Coeff. | | t-stat |
| Intercept | 0.2299 | ** | 2.45 | 0.1559 | *** | 2.80 | 0.1421 | ** | 2.31 |
| $SUSPECT_t$ | 0.0605 | | 0.61 | 0.0441 | | 0.75 | 0.0805 | | 1.24 |
| $ENF$ | -0.0083 | ** | -2.00 | -0.0035 | | -1.43 | -0.0016 | | -0.59 |
| $SUSPECT_t \times ENF$ | -0.0035 | | -0.66 | -0.0029 | | -0.92 | -0.0049 | | -1.41 |
| $MB_t$ | 0.0090 | | 1.35 | 0.0071 | | 1.80 | 0.0005 | | 0.11 |
| $SIZE_t$ | -0.0016 | | -0.36 | -0.0003 | | -0.11 | -0.0009 | | -0.31 |
| $chREV_t$ | -0.0728 | *** | -2.64 | -0.0601 | *** | -3.69 | -0.0224 | | -1.25 |
| $LEV_t$ | -0.0049 | | -1.04 | -0.0057 | ** | -2.05 | -0.0034 | | -1.10 |
| $BIG4_t$ | -0.0083 | | -0.66 | -0.0020 | | -0.27 | -0.0013 | | -0.16 |
| $COVERAGE_t$ | 0.0028 | *** | 2.80 | 0.0014 | ** | 2.35 | 0.0014 | ** | 2.16 |
| $DISSUE_t$ | -0.0094 | | -0.73 | -0.0094 | | -1.24 | -0.0249 | *** | -2.96 |
| $EISSUE_t$ | 0.0062 | | 0.35 | -0.0119 | | -1.13 | 0.0040 | | 0.34 |
| $GDPGR_t$ | -0.0010 | | -0.39 | 0.0014 | | 0.95 | 0.0002 | | 0.12 |
| Year fixed effects | Included | | | Included | | | Included | | |
| Industry fixed effects | Included | | | Included | | | Included | | |
| Adj $R^2$ | 0.0503 | | | 0.0928 | | | 0.0653 | | |
| Number of | 598 | | | 598 | | | 598 | | |

***, **, and * denote significance (two-tailed) at the 0.01, 0.05, and 0.10 levels, respectively.
Suspect firms are identified by matching goodwill impairers with non-impairers in the same industry-year with the closest market-to-book ratio of equity.
The model is estimated for firms in the subsample of low enforcement countries. Low enforcement is defined as enforcement below the median.
See Appendix A for definition of variables.