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# The value-relevance of gains on bargain purchase: do actions speak louder than words?

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## Abstract

**Purpose** – This paper investigates whether disclosure quality and a history of overpaying for acquisitions are associated with differences in the value-relevance of gains on bargain purchase with high disclosure prominence.

**Design/methodology/approach** – Findings are from multivariate regression results, using a sample of firms listed in South Africa from 2010 to 2019, where a mandatory earnings reconciliation provides high disclosure prominence for gains on bargain purchase.

**Findings** – Given high disclosure prominence, disclosure quality is not associated with differences in the pricing of gains on bargain purchase. Instead, most gains on bargain purchase are priced as future losses (unrecognised liabilities). However, when a firm has a history of overpaying for acquisitions, gains on bargain purchase are priced as transitory economic gains.

**Research limitations/implications** – Further research is required to determine if overpaying for acquisitions similarly communicates the credibility of gains on bargain purchase when disclosure prominence is low.

**Practical implications** – Disclosure prominence can reduce disclosure processing costs and increase the value-relevance of complex acquisition accounting. High disclosure quality cannot compensate for a weak acquisition track record.

**Originality/value** – Findings deepen our understanding of the pricing of gains on bargain purchase. This paper presents empirical results that reconcile previously conflicting theoretical views of gains on bargain purchase (as unrecognised assets or as unrecognised liabilities), by shedding light on the role that a record of overpaying for acquisitions plays in the value-relevance of gains on bargain purchase.

**Keywords** Gain on bargain purchase, Disclosure quality, Disclosure prominence, Acquisition, Goodwill, Value-relevance

**Paper type** Research paper

## 1. Introduction

Current International Financial Reporting Standards (IFRS) require that the acquisition method be applied to business combinations (IASB – International Accounting Standards Board, 2020). This essentially leads to one of two outcomes at the acquisition date, namely the recognition of goodwill or a gain on bargain purchase. Theoretically, goodwill and a gain on bargain purchase are opposite outcomes of the same calculation: goodwill arises when the consideration paid exceeds the fair value of the equity (net assets) acquired (overpayment), while a gain on bargain purchase arises when the consideration paid is less than the fair value of the equity acquired (underpayment). However, while the method for calculating

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these items is the same, the accounting treatment is not. Rather than being expensed, goodwill is recognised as an asset on the balance sheet and tested for impairment at least annually under IAS 36 (IASB – International Accounting Standards Board, 2013), while a gain on bargain purchase is recognised in profit or loss in the year of acquisition under IFRS 3 (IASB – International Accounting Standards Board, 2020).

Prior research on business combinations has mainly considered goodwill, so that little is known about gains on bargain purchase (Elnahass & Doukakis, 2019). Standard-setters view gains on bargain purchase as inherently anomalous occurrences, which carry little weight with investors (IASB – International Accounting Standards Board, 2020: BC371-BC372). Nevertheless, Elnahass and Doukakis (2019) argue that high disclosure quality lends credibility to both the acquisition date accounting and the underlying acquisition decision. In other words, investors may be more likely to price the acquisitions of management teams that devote time and effort to improving disclosure quality, believing that this also reflects greater care in, and greater likelihood of success of, the underlying acquisition decision. Elnahass and Doukakis (2019) find that gains on bargain purchase with high disclosure quality are value-relevant in the UK after 2010 (albeit as once-off economic gains), while other gains on bargain purchase are not priced [1].

However, their results could also reflect that high disclosure quality merely increases investor awareness of the gain on bargain purchase. Higher investor awareness of a phenomenon reduces disclosure processing costs as information becomes cheaper to acquire (Blankespoor, deHaan, & Marinovic, 2020). In turn, lower disclosure processing costs increase the value-relevance of information (Blankespoor *et al.*, 2020). Importantly, disclosure quality is not the only mechanism, which may increase investor awareness of a gain on bargain purchase. Prior research finds that disclosure *prominence* is at least as effective as disclosure *quality* in triggering investor awareness (Covitz & Harrison, 2004; Frankel, McVay, & Soliman, 2011; Bartov & Mohanram, 2014; Shi, Wang, & Zhou, 2017). Heightened awareness of a gain on bargain purchase may therefore be a sufficient trigger to search for information to evaluate and price acquisition date accounting, irrespective of whether the information is contained in financial statements or in another source.

Importantly, firms listed on the Johannesburg Stock Exchange (JSE) in South Africa disclose gains on bargain purchase as a separate adjustment in a mandatory earnings reconciliation of "headline earnings" (Venter, Emanuel, & Cahan, 2014; SAICA – South African Institute of Chartered Accountants, 2019). A mandatory earnings reconciliation is an effective form of disclosure prominence (Bowen, Davis, & Matsumoto, 2005; Frankel *et al.*, 2011). Therefore, although the application of acquisition accounting is similar to that of other countries applying IFRS, any resultant gain on bargain purchase is disclosed with greater prominence in South Africa. As the format and content of this earnings reconciliation is prescribed and required to be audited, this disclosure represents a regulatory characteristic (Venter *et al.*, 2014; SAICA – South African Institute of Chartered Accountants, 2019). Investors pay particular attention to this reconciliation as headline earnings are the most important earnings measure in South Africa (Matshoba, 2022; Reuters, 2022). Therefore, the South African setting provides a unique opportunity to investigate the pricing of gains on bargain purchase calculated under IFRS but with high disclosure prominence. Consequently, the first objective of this study is to determine whether gains on bargain purchase with high disclosure prominence are value-relevant independent from disclosure quality.

Furthermore, the findings of Elnahass and Doukakis (2019) do not reconcile opposing theoretical viewpoints of the nature of gains on bargain purchase. Their findings are solely consistent with arguments that gains on bargain purchase represent economic gains, such as future profits accruing to the acquirer (Comiskey & Mulford, 2011; Kabir, 2020), but do not explain why firms frequently cite expectations of future losses and restructuring expenses as the reason for recognising a gain on bargain purchase (Boehm, Teuteberg, & Zülch, 2016). In

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other words, gains on bargain purchase could represent future liabilities to be taken on by the acquirer (Gaharan, 2015; Boehm *et al.*, 2016), which would explain why Amano (2022) finds that gains on bargain purchase are negatively associated with future operating performance. This raises a theoretical expectation that gains on bargain purchase should be priced as losses (liabilities) under certain circumstances, which expectation is best considered with reference to a firm's acquisition track record.

A firm's acquisition track record lasts over long periods with strong predictive power for future outcomes (Gu & Lev, 2011; Li, Shroff, Venkataraman, & Zhang, 2011; Golubov, Yawson, & Zhang, 2015). This implies that chronic overpayers continue to overpay and investors can deduce the likely outcome of any new acquisition from prior acquisition outcomes (Golubov *et al.*, 2015; Delis, Iosifidi, Kazakis, Ongena, & Tsionas, 2022). As gains on bargain purchase arise from *underpaying* for an acquisition, they are less likely to be recognised by chronic overpayers. Therefore, a track record of overpaying for acquisitions increases the likelihood that a gain on bargain purchase truly represents an economic gain, making it more likely to be priced as such. In contrast, in the absence of evidence from an acquisition track record, gains on bargain purchase could arise from errors in the accounting process or might represent future liabilities (Boehm *et al.*, 2016; Amano, 2022). This could result in investors not pricing such gains or pricing them as losses (liabilities). The second objective of this study is therefore to determine whether a firm's acquisition track record, specifically a track record of overpayment, is associated with differences in pricing of gains on bargain purchase as economic gains or losses (liabilities).

This paper uses a sample of JSE-listed firms reporting from 2010 to 2019 and a multivariate regression approach for its inferences. The first set of results shows that, in a high disclosure prominence setting, gains on bargain purchase are priced, irrespective of their disclosure quality. This implies that, in contrast with Elnahass and Doukakis (2019), disclosure quality is not a necessary precondition for the value-relevance of gains on bargain purchase. In further investigations, this paper finds that a history of overpaying for acquisitions is associated with cross-sectional differences in the pricing of gains on bargain purchase. Specifically, when controlling for overpayment track records, most gains on bargain purchase are priced as losses (liabilities). However, gains on bargain purchase (underpayment) are less likely to be recognised by chronic overpayers. Consequently, gains on bargain purchase that are recognised by overpayers are priced as economic gains. These findings are further supported in the years after the acquisition date, where older gains on bargain purchase are generally priced as liabilities, while those of overpayers are not value-relevant. This supports a theoretical view that gains on bargain purchase represent future losses or liabilities, such as restructuring liabilities, which emerge on the balance sheet over time (Comiskey, Clarke, & Mulford, 2010; Gaharan, 2015; Boehm *et al.*, 2016), but that more credible gains on bargain purchase (recognised by chronic overpayers) are priced as transitory economic gains. In contrast to Elnahass and Doukakis (2019), the overall empirical results therefore reconcile the divergent theoretical viewpoints on gains on bargain purchase.

Results collectively imply that gains on bargain purchase with high disclosure prominence tend to be priced as losses (liabilities), but more credible gains are priced as transitory economic gains. Disclosure quality has limited enduring impact on the value-relevance of gains on bargain purchase with high disclosure prominence. This reflects that improving disclosure quality by itself (words) will not overcome a history of overpaying (actions) and that the decision-usefulness of gains on bargain purchase is best judged with reference to both.

These inferences add several contributions to the existing literature. Firstly, the initial value-relevance results show that disclosure prominence is as effective as disclosure quality in reducing disclosure processing costs for complex acquisition accounting. Secondly, this paper reveals the role of a firm's acquisition track record in differentiating between economic

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gains and losses (liabilities) when a gain on bargain purchase is recognised. This adds additional insight to existing studies which only provide evidence of circumstances under which gains on bargain purchase may be priced as economic gains (Dunn, Kohlbeck, & Smith, 2016; Elnahass & Doukakis, 2019) and reconciles conflicting theoretical views around the economic nature of gains on bargain purchase. Thirdly, findings imply that improved value-relevance cannot be achieved through disclosure quality alone. Instead, the quality of underlying decisions has a much stronger association with cross-sectional differences in the value-relevance of gains on bargain purchase. This broadens the conditions under which gains on bargain purchase may be priced compared to prior research which identifies disclosure quality (Elnahass & Doukakis, 2019) or distressed targets (Dunn *et al.*, 2016) as the relevant prerequisites. Given the limited research available around gains on bargain purchase (Elnahass & Doukakis, 2019), investors, preparers of financial statements and researchers will all be interested in these findings.

The next section contains background and a literature review, followed by the hypothesis development in a separate section thereafter. Sections discussing the research methodology and sample selection are followed by the results of descriptive investigations and multivariate regressions. A final section summarise and concludes the paper.

## 2. Background and literature review

The development of accounting for business combinations has been a complex process and divergent practices have existed for a long time (Ding, Richard, & Stolowy, 2008; Chaney, Gunn, & Coleman Jeter, 2020; Amel-Zadeh, Glaum, & Sellhorn, 2023). However, current accounting practices have converged, so that the acquisition method is used to account for virtually all business combinations under IFRS 3 (IASB – International Accounting Standards Board, 2020). At a basic level, these requirements mean that the acquirer in a business combination compares the fair value of the consideration paid to the fair value of the equity (net assets) that it receives in return. Over time, considerable energy has been expended on how to treat differences that arise from this comparison. Accounting researchers and standard setters have tended to focus on instances where the consideration exceeds the equity received (overpayment), namely the recognition of goodwill (Boehm *et al.*, 2016; Elnahass & Doukakis, 2019). The opposite scenario, namely the recognition of a gain on bargain purchase when the equity acquired exceeds the consideration transferred (underpayment), has received far less attention (Elnahass & Doukakis, 2019).

On the part of the standard setters, a reason for the lack of attention appears to be a belief that gains on bargain purchase are inherently anomalous occurrences (IASB – International Accounting Standards Board, 2020: BC371) and that careful application of the accounting requirements should prevent erroneous recognition of such gains (IASB – International Accounting Standards Board, 2020: BC381). However, Boehm *et al.* (2016) note that comment letters from practitioners suggest that gains on bargain purchase are far from rare. Prior research finds that gains on bargain purchase are reported for 1.7% of firm-years in the United Kingdom (UK) (Elnahass & Doukakis, 2019), 4.2% in Germany (Boehm *et al.*, 2016), 6.9% in Japan (Takahashi, 2014) and 7.6% in Australia (Kabir, 2020). In addition, Boehm *et al.* (2016) find that gains on bargain purchase occur, on average, more than twice for each unique firm during their nine-year sample period. Therefore, gains on bargain purchase appear to be recognised with sufficient frequency to render the label of "anomalous" inappropriate.

In the case of research, recognising a gain on bargain purchase in profit or loss is a relatively new accounting treatment (Comiskey *et al.*, 2010; Chaney *et al.*, 2020). However, many have questioned whether gains on bargain purchase represent true economic gains (Elnahass & Doukakis, 2019; Gaharan, 2015). Prior research finds that the reasons for

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recognising a gain on bargain purchase are often poorly disclosed (Comiskey & Mulford, 2011; Boehm *et al.*, 2016; Elnahass & Doukakis, 2019; Kabir, 2020) and frequently have little to do with an economic gain, such as consideration in the form of equity (Boehm *et al.*, 2016; Kabir, 2020), measurement error (Kabir, 2020) and earnings management (Kabir, 2020; Lilien, Sarath, & Yan, 2020). Moreover, there is some evidence that gains on bargain purchase represent expected future losses or liabilities (e.g. restructuring liabilities) to be taken on by the acquirer (Gaharan, 2015; Boehm *et al.*, 2016; Amano, 2022). In general, research suggests that a true economic gain from a gain on bargain purchase arises mainly when the target was in distress (Comiskey & Mulford, 2011; Kabir, 2020). Nevertheless, there are also arguments that gains on bargain purchase could represent future profits accruing to the acquirer (Comiskey & Mulford, 2011; Kabir, 2020). If a gain on bargain purchase represents future profits that are expected to be earned over multiple future periods (i.e. an unrecognised asset), investors might price it as recurring earnings, even when the gain itself is a one-off event.

Initial empirical research failed to detect general value-relevance for gains on bargain purchase when firms report under US GAAP (Comiskey *et al.*, 2010) and when firms report under IFRS (Wang, 2018). However, Dunn *et al.* (2016) conclude that gains on bargain purchase are value-relevant when the target is a distressed bank. More recently, Elnahass and Doukakis (2019) found that high disclosure quality is associated with value-relevant gains on bargain purchase for their sample of UK firms. Specifically, they show that, provided a firm adequately discloses the reason for recognising a gain on bargain purchase under a revision of IFRS 3 (effective from 2010), investors price it as an economic gain. Their findings suggest that gains on bargain purchase can be value-relevant, irrespective of the nature and circumstances of the acquisition target.

## 3. Hypothesis development

The underlying argument in Elnahass and Doukakis (2019) is that high disclosure quality (high financial reporting quality) is a proxy of the overall quality of management decisions. Therefore, gains on bargain purchase with high disclosure quality gain recognition credibility and are priced as economic gains by investors. However, cross-sectional differences in the value-relevance of information might be due to varying disclosure processing costs (Blankespoor *et al.*, 2020). Two elements of disclosure processing costs could apply in the context of gains on bargain purchase. Firstly, an investor needs to be aware that a gain on bargain purchase exists before the information can be used. Secondly, an investor incurs opportunity cost in searching for information around gains on bargain purchase that could have been directed towards other information. Therefore, it is possible that high disclosure quality reduces disclosure processing costs by raising investor awareness of gains on bargain purchase and enabling a preliminary assessment of whether further investigation is required. In other words, high disclosure quality could act as a trigger for investors to source information about the acquisition (not necessarily from financial statements).

In this respect, prior research finds that the ability of disclosure prominence to boost investor awareness of a phenomenon is at least equal to that of disclosure quality (Covitz & Harrison, 2004; Frankel *et al.*, 2011; Bartov & Mohanram, 2014; Shi *et al.*, 2017). Disclosure prominence reduces disclosure processing costs by increasing investor awareness of a phenomenon (Blankespoor *et al.*, 2020) and may also reduce opportunity cost as an investor can assess basic information around the amount more rapidly. Moreover, mandatory earnings reconciliations (Bowen *et al.*, 2005; Frankel *et al.*, 2011) and standardised formats (Covitz & Harrison, 2004; Frankel *et al.*, 2011; Bartov & Mohanram, 2014; Shi *et al.*, 2017) are two ways of raising disclosure prominence. This is important as firms listed on the JSE in South Africa must disclose a mandatory and rule-based reconciliation between IFRS

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earnings and "headline earnings" in a standardised format (Venter *et al.*, 2014; Badenhorst & von Well, 2023). This earnings reconciliation must be presented in the format dictated by the circular and firms may not deviate from the prescriptions (SAICA – South African Institute of Chartered Accountants, 2019). Furthermore, the reconciliation of headline earnings is audited (Venter *et al.*, 2014).

The combination of mandatory rules and monitoring by auditors means that firms listed on the JSE are subject to unique regulatory requirements. These requirements raise the disclosure prominence of amounts that must be separately included in the earnings reconciliation. Significantly, gains on bargain purchase are a specified reconciling item under the circular (SAICA – South African Institute of Chartered Accountants, 2019). As headline earnings are the most important earnings measure in South Africa (Matshoba, 2022; Reuters, 2022), investors pay particular attention to the income and expenses included in the earnings reconciliation (such as gains on bargain purchase), thereby raising the disclosure prominence of these items. An example of a headline earnings reconciliation is contained in Appendix 1.

Consequently, gains on bargain purchase of JSE-listed firms have higher disclosure prominence than in other settings. However, this merely increases investor awareness of gains on bargain purchase. Disclosure quality may still vary considerably between firms. Therefore, this setting offers a unique opportunity to investigate whether disclosure quality of gains on bargain purchase continues to explain differences in value-relevance under conditions of heighted investor awareness. The first hypothesis is (in alternative form):

*H1*. Gains on bargain purchase for JSE-listed firms are priced irrespective of disclosure quality.

However, making a value-destructive acquisition does not necessarily reduce disclosure quality. Instead, investors will price an acquisition based on their expectations of whether it will be economically value-destructive (Bruner, 2002). The best predictor of a value-destructive outcome is overpayment for an acquisition (Li *et al.*, 2011; Olante, 2013). Moreover, prior research finds that firms that made value-destructive acquisitions in the past (overpaid in the past) continue to do so and that this predictive ability endures over long periods (Golubov *et al.*, 2015; Delis *et al.*, 2022). Assuming that investors consider a firm's overpayment track record to evaluate new acquisitions, this history could explain cross-sectional variation in the credibility and resultant pricing of gains on bargain purchase. In other words, gains on bargain purchase that have (lack) recognition credibility due to a firm's acquisition track record are more (less) likely to reflect as value-relevant economic gains. Therefore, the second hypothesis is (in alternative form):

*H2*. A firm's overpayment track record is associated with cross-sectional variation in the pricing of gains on bargain purchase.

Notably, gains on bargain purchase might represent future losses or liabilities to be taken on by the acquirer, rather than economic gains (Gaharan, 2015; Boehm *et al.*, 2016). Boehm *et al.* (2016) find that around 20% of gains on bargain purchase arise from expectations of future losses or liabilities and Amano (2022) concludes that, compared to firms that recognise goodwill, gains on bargain purchase are associated with weaker post-acquisition performance. In this regard, research findings on the value-relevance of goodwill (the theoretical opposite of a gain on bargain purchase) are helpful in developing expectations. Bugeja and Gallery (2006) argue that goodwill represents future profits or unrecognised assets that will accrue to the acquirer and find that goodwill older than two years is not value-relevant. They conclude that the reason for the lack of value-relevance is that older goodwill has been replaced on the balance sheet by the realised profits or assets that it originally represented. If a gain on bargain purchase therefore represents future losses or unrecognised liabilities, it is reasonable to assume that it will also be replaced by realised losses or

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liabilities on the balance sheet over a similar two-year period. The theoretical implication is that a component of book value of equity (the gain on bargain purchase) would steadily be eroded by subsequent losses. Separating out the amount of the gain at initial recognition would therefore require an equivalent amount to be priced as a loss (liability) to balance back to book value. Consequently, the third hypothesis is (in alternative form):

*H3.* Old gains on bargain purchase are priced as liabilities.

## 4. Research methodology, sample and data

### *4.1 Sample and data*

The initial sample for this study is defined as all dead and active firms that are listed on the JSE in South Africa and included in the Refinitiv database. The sample period is limited to firms with annual reporting dates between 1 January 2010 and 31 December 2019. Recession events have a confounding impact on value-relevance results (Kane, Leece, Richardson, & Velury, 2015). Therefore, following Badenhorst and von Well (2023), the sample period excludes the 2007–2008 global financial crisis (where the recovery impact continued into 2009) as well as the start of the global pandemic during 2020.

Gain on bargain purchase amounts are hand-collected from annual results announcements of sample firms published from 2010 to 2019. As firms listed on the JSE are required to include a reconciliation of headline earnings in results announcements, the hand-collection process involves searching for this reconciliation and manually scanning it to determine if a gain on bargain purchase has been disclosed. Amounts described using alternative terms (such as "bargain purchase gain", "gain on acquisition" and "negative goodwill") are also collected as gain on bargain purchase amounts.

Following Elnahass and Doukakis (2019), the disclosure quality of these amounts is differentiated based on whether the firm explicitly discloses the reason for recognising the gain on bargain purchase in the annual report. In this part of the hand-collection process, a keyword search in the annual report is employed using the identified term or amount of the gain on bargain purchase in the results announcement to locate the relevant disclosures in the annual report. Firms with low-quality disclosure for gains on bargain purchase typically omit the reason for its recognition or describe the mechanics of the calculation. By contrast, firms with high disclosure quality provide details of the underlying transaction when describing the reasons for recognising a gain on bargain purchase. Additional details on the evaluation of disclosure quality and some examples thereof are contained in Appendix 2.

Finally, for sample firms identified in previous processes that report during 2010, results announcements of 2009 and 2008 are also obtained so that data on gains on bargain purchase of previous years (old gains on bargain purchase) can be hand-collected. All other data items are obtained from the Refinitiv database [2].

### *4.2 Measuring a firm's history of overpaying*

The second hypothesis of this study (H2) requires the operationalisation of a firm's overpayment track record, which is incorporated into the multivariate regression models. Given the relative complexity of the operationalisation of overpayment track records, this section provides the theoretical background of the proxy for the overpayment track record (*Impair*).

It is well-established in the literature that acquisition track records exist and play a significant role in post-acquisition returns (Kaplan & Schoar, 2005; Jaffe, Pedersen, & Voetmann, 2013; Delis *et al.*, 2022). However, Golubov *et al.* (2015) find that firms that make value-destructive acquisitions ("bad acquirers") continue to do so over long periods of time,

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even in the face of changes in management, advisors and industry affiliation. Furthermore, "good acquirers" similarly continue to make value-accretive acquisitions. Specifically, Golubov *et al.* (2015) show that firm fixed effects have greater explanatory power than the combined effect of all other characteristics that they consider. This implies the existence of a firm-specific acquisition track record, which is extremely powerful in predicting the outcome of further acquisitions.

Nevertheless, measuring a firm's acquisition track record is challenging. One possibility to consider is measuring an acquisition track record with reference to announcement date returns. However, using announcement date returns as a proxy can be problematic. Firstly, by definition, a track record must relate to more than the outcome of a single acquisition. Therefore, announcement date returns relating to a single acquisition cannot be used as a proxy for a firm's acquisition track record. Secondly, announcement date returns should be estimated over short periods to avoid confounding effects. However, given the complexity of these transactions, market mispricing at the date of announcement results in severe post-announcement drift (Krishnan & Yakimenko, 2022). Finally, acquisition announcements are subject to impression management, which may confound observed reactions (Busenbark, Lange, & Certo, 2017; Jin, Li, & Hoskisson, 2022).

However, Li *et al.* (2011) note that the best predictor of a value-destructive acquisition (i.e. a "bad acquirer") is *overpaying* for an acquisition. Overpaying for an acquisition typically leads to the recognition of goodwill and subsequently manifests in impairment losses (Gu & Lev, 2011; Olante, 2013). Although impairment losses are rarely recognised on a timely basis (Li *et al.*, 2011), a history of overpaying is not dependent on timely recognition in the accounting records. In addition, acquisition track records endure for long periods of time, irrespective of changes in many firm characteristics (Golubov *et al.*, 2015). Therefore, recognition of an impairment loss on goodwill for accounting purposes increases the probability that a firm is a chronic overpayer, even if the related acquisition (and economic loss) occurred in a much earlier period.

Importantly, chronic *overpayers* are far less likely to recognise a gain on bargain purchase, which represents *underpayment* for an acquisition. Consequently, impairment of goodwill implies that a firm is a chronic overpayer (Gu & Lev, 2011; Li *et al.*, 2011; Golubov *et al.*, 2015) but also provides evidence that a firm is unlikely to *underpay* for new acquisitions. The somewhat ironic implication is that gains on bargain purchase of chronic overpayers have higher economic credibility, as they are more likely to reflect accurate accounting of the economic reality. In other words, on the basis of past evidence, investors may be more likely to price a gain on bargain purchase of chronic overpayers as a true economic gain.

Therefore, this study operationalises a firm's acquisition track record as the likelihood that it will overpay for a new acquisition, based on the recognition of goodwill impairment losses. Specifically, a firm is identified as an overpayer if it has recognised an impairment loss on goodwill in either the current or preceding two years. In the regression models of Section 4.3, a firm's overpayment track record therefore reflects as an indicator variable (*Impair*) set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise.

There are advantages to operationalising an acquisition track record in this manner. Firstly, it focuses on the critical aspect of acquisition success or failure, namely overpayment, which manifests in impairment losses (Li *et al.*, 2011; Gu & Lev, 2011; Olante, 2013). Secondly, it relies only on the presence or absence of an audited accounting number and is therefore a simple, objective and verifiable proxy, unplagued by potential measurement error introduced by the researcher. Thirdly, it is plausible that investors will consider past goodwill impairments in decisions, as they are unusual items and therefore more likely to be recalled (Waddill & McDaniel, 1998). Fourthly, the use of a three-year period mitigates to

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some extent against the lack of timeliness in the recognition of impairment losses on goodwill. Finally, while a lack of financial reporting quality could affect the *amount* of goodwill recorded (Bugeja & Loyeung, 2015), the primary driver of subsequent *impairment* is overpayment at acquisition (Gu & Lev, 2011; Li *et al.*, 2011; Olante, 2013). Therefore, if subsequent goodwill impairment reflects low acquisition date accounting quality, this should also reduce the accounting quality of gains on bargain purchase (which arise from the same accounting process) and thereby bias against results [3].

*4.3 Research methodology*

The regression models for this study are derived from a simplified Ohlson (1995) model, which is frequently used in value-relevance research (Barth, Beaver, & Landsman, 2001; Venter *et al.*, 2014). Value-relevance studies do not claim to estimate or predict firm value, but a simplified model still provides valid inferences around the decision-usefulness of information (Barth *et al.*, 2001). Definitions of variables used in the regression models are summarised in Appendix 3.

The first model closely follows that of Elnahass and Doukakis (2019). It is estimated to investigate the pricing of gains on bargain purchase with different disclosure quality (firm and year subscripts are suppressed):

$$MV = \alpha + \beta_1 BV + \beta_2 NI + \beta_3 GBP\_Disc + \beta_4 GBP\_NoDisc + \beta_5 Neg + \beta_6 Neg * BV + \beta_7 Neg * NI + \beta_8 Neg * GBP\_Disc + \beta_9 Neg * GBP\_NoDisc + \varepsilon \quad (1)$$

where *MV* is market value per share (share price) [4] *BV* is book value per share, excluding the gain on bargain purchase variables; and *NI* is earnings attributable to ordinary shareholders per share, excluding the gain on bargain purchase variables. Following Elnahass and Doukakis (2019), *GBP_Disc* (*GBP_NoDisc*) is the gain on bargain purchase per share recognised in earnings during the current period where the firm discloses (does not disclose) a supporting reason for its recognition. *Neg* is an indicator variable, set to one if *NI* is negative and zero otherwise, and controls for the fact that firms that report a loss are priced differently from other firms (Hayn, 1995). The interactions of *Neg* with the accounting variables ($\beta_6$–$\beta_9$) represent additional controls for the pricing difference between firms that report a loss and other firms (Dunn *et al.*, 2016; Elnahass & Doukakis, 2019) [5].

Thereafter, for the remaining investigations, model (1) is expanded as follows (firm and year subscripts are suppressed):

$$\begin{aligned} MV = {} & \alpha + \beta_1 BV + \beta_2 NI + \beta_3 Impair + \beta_4 GBP\_Disc + \beta_5 GBP\_NoDisc + \beta_6 GBPold\_Disc \\ & + \beta_7 GBPold\_NoDisc + \beta_8 Impair * GBP\_Disc + \beta_9 Impair * GBP\_NoDisc \\ & + \beta_{10} Impair * GBPold\_Disc + \beta_{11} Impair * GBPold\_NoDisc + \beta_{12} Impair * BV \\ & + \beta_{13} Impair * NI + \beta_{14} Neg + \beta_{15} Neg * BV + \beta_{16} Neg * NI + \beta_{17} Neg * GBP\_Disc \\ & + \beta_{18} Neg * GBP\_NoDisc + \beta_{19} Neg * GBPold\_Disc + \beta_{20} Neg * GBPold\_NoDisc + \varepsilon \end{aligned} \quad (2)$$

where *GBPold_Disc* (*GBPold_NoDisc*) is the sum of the gains on bargain purchase per share recognised in earnings over the two reporting periods immediately preceding the current year where the firm disclosed (did not disclose) supporting reasons in the period of their first recognition. Old gains on bargain purchase are therefore separated out from equity, so that a

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positive coefficient implies that this component of equity is being priced as realised gains (assets) and a negative coefficient implies pricing as realised losses (liabilities). *BV* is adjusted to exclude all gains on bargain purchase variables, while *NI* remains as previously specified [6]. All other variables likewise remain as previously specified, apart from *Impair*, which is introduced as an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise. To control for the possibility that a firm's overpayment track record generally affects the pricing of accounting variables, *Impair* is also interacted with *BV* and *NI*. Therefore, the interactions from $\beta_{12}$ to $\beta_{20}$ represent control variables in model (2).

The first variables of interest are those that relate to gains on bargain purchase ($\beta_4 - \beta_7$) which reveal the pricing of gains on bargain purchase in the absence of an overpayment track record. Each interaction between a gain on bargain purchase variable and *Impair* ($\beta_8 - \beta_{11}$) reveals the change in pricing of the gain on bargain purchase, given a firm's overpayment track record. Therefore, the interaction between *Impair* and *GBP_Disc* (*GBP_NoDisc*), reflected as $\beta_8$ ($\beta_9$) in model (2), reveals the change in value-relevance of gains on bargain purchase with high (low) disclosure quality when a firm is a chronic overpayer compared to other firms. If a firm's track record of overpaying for acquisitions increases (does not affect) the credibility of gains on bargain purchase, these interactions should be positive (insignificant), reflecting that investors view such gains on bargain purchase as more credible (measurement error, i.e. noise) than those of other firms. However, to determine whether gains on bargain purchase are priced as economic gains or economic losses, the net pricing of the main coefficient and its interaction must be considered. Therefore, similar to the approach in Elnahass and Doukakis (2019), a gain on bargain purchase for a chronic overpayer is priced as an economic gain (loss) if the sum of the gain on bargain purchase variable and its interaction is positive (negative). For example, if the sum of coefficients $\beta_4$ and $\beta_8$ is significantly positive, this would imply that gains on bargain purchase with high disclosure quality are priced as economic gains when they are recognised by a chronic overpayer. By contrast, if the sum of coefficients $\beta_6$ and $\beta_{10}$ is significantly negative, this would imply that, despite high disclosure quality at initial recognition, older gains on bargain purchase of chronic overpayers are priced as losses (liabilities).

### *4.4 Scaling and outliers*

Following prior research around business combinations (Bugeja & Gallery, 2006; Comiskey *et al.*, 2010; Dunn *et al.*, 2016), all continuous variables are expressed as per share variables. Scaling by the number of outstanding shares reliably compensates for scale effects in value-relevance models (Barth & Clinch, 2009; Aledo Martínez, Garcia Lara, Gonzalez Perez, & Grambovas, 2020). The impact of outlying observations is reduced by winsorising all continuous variables, by year, at the 1 and 99% levels.

## 5. Results of descriptive investigations

The sample reconciliation is displayed in Table 1. The initial selection consisted of 448 dead and active firms present on the database. As dead firms form part of this selection, the first filter removes firm-years for which market data is not available on the database, after which hand-collected data is obtained and firm-years without the required accounting data are removed. As the reconciliation in Table 1 shows, the final sample comprises 429 firm-years relating to 125 unique firms. Compared to the available population of 402 firms, more than 30% of firms reported a gain on bargain purchase at least once during the sample period.

Table 2 reflects that sample firm-years are fairly evenly distributed across the sample period. This table also provides the industry composition of the sample, where industries are

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| Description | Number of firm-years | Number of unique firms |
|---|---|---|
| Initial sample of firms selected from dead and active firms on the database | 3,394 | 448 |
| Market data or number of shares not available on the database during the sample period | (511) | (45) |
| Steinhoff international holdings[a] | (11) | (1) |
| General accounting data items missing on database | (2) | – |
| Sample of firms used for hand-collection of data | 2,870 | 402 |
| No gain on bargain purchase in the current or previous two years | (2,441) | (277) |
| Gain on bargain purchase in the current or previous two years | 429 | 125 |

**Note(s):** [a]Steinhoff International Holdings was subject to large-scale fraud during the sample period. Accounting information on the database is being retrospectively corrected with the result that historical market data no longer relates to the available accounting information
**Source(s):** Author's own work

**Table 1.**
Sample reconciliation

identified by using the sector classification on the database [7]. Financial services is the most prevalent sector in the sample, as banks, insurers, real estate investment trusts and other financial services firms combined comprise around 30% of the sample. Notably, when Elnahass and Doukakis (2019) investigate gains on bargain purchase in the UK, financial service firms represent around 50% of their sample. It therefore offers a suggestion that the large weighting of financial services firms is not sample-specific, but rather that gains on bargain purchase are generally more likely to be reported by the financial services industry [8].

Panel A of Table 3 contains descriptive statistics for the main variables. It shows that gains on bargain purchase are not a large component of the book value of equity. Even when combined, the gains on bargain purchase variables represent, on average, 1.0% of reported book values. Furthermore, total gains on bargain purchase recognised in earnings during the current year (the sum of *GBP_Disc* and *GBP_NoDisc*) represent, on average, 2.8% of reported earnings. However, given the implied average earnings and book value multiples of sample firms, gains on bargain purchase appear to be economically significant. Notably, 44.1% of sample firms report an impairment of goodwill in the current or two preceding reporting periods (*Impair*). This suggests that impairment of goodwill is prevalent enough to serve as a proxy for firms' acquisition track records.

In Panel B of Table 3, sample firm-years are stratified into low- and high disclosure quality subsamples (based on whether a value exists for *GBP_Disc* and/or *GBPold_Disc*). Firm-years with low disclosure quality impair goodwill more frequently ($p = 0.023$), but report losses less frequently ($p = 0.099$) than other firms. By implication, overpayers have lower disclosure quality, which increases the probability that differences in disclosure quality capture overpayment track records. This biases against finding an incremental role for overpayment history.

Untabulated statistics reveal that the sample as a whole is skewed towards firms with lower market value and total assets. However, Panel B also shows that firm size, return on assets and gearing appear to be randomly distributed through the subsamples and no significant differences are detected. In addition, the difference in the materiality of gains on bargain purchase (*GBPmat*) between the two subsamples is insignificant ($p = 0.310$). This implies that differences in disclosure quality are not solely explained by materiality of gains on bargain purchase. The relatively random distribution of firm characteristics between the subsamples provides a measure of comfort that disclosure quality is not a proxy for these characteristics.

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| Industry | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Total firm-years | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Automobiles and parts | | | | | | 1 | 1 | 1 | | | *3* | 0.7 |
| Banks | 3 | 3 | 3 | 2 | 1 | 1 | | | 1 | 1 | *15* | 3.5 |
| Chemicals | 1 | 1 | 1 | | | 1 | 1 | 1 | | | *6* | 1.4 |
| Construction and materials | 2 | 3 | 4 | 3 | 3 | 2 | 1 | | 1 | 2 | *21* | 4.9 |
| Education | | | | | | 1 | 1 | 1 | 2 | 2 | *7* | 1.6 |
| Electronic and electrical equipment | | | 1 | 1 | 1 | | | | | | *3* | 0.7 |
| Financial services (other) | 3 | 5 | 6 | 5 | 6 | 4 | 6 | 5 | 5 | 4 | *49* | 11.4 |
| Food and drug retailers | | | | | | | | 1 | 2 | 2 | *5* | 1.2 |
| Food producers | 1 | 2 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | *16* | 3.7 |
| Forestry and paper | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | *9* | 2.1 |
| General industrials | 1 | 2 | 3 | 3 | 3 | 2 | 1 | 4 | 4 | 6 | *29* | 6.7 |
| General retailers | | | 1 | 1 | | 1 | 1 | 1 | 1 | 3 | *9* | 2.1 |
| Health care equipment and services | 1 | 2 | 3 | 2 | 2 | 3 | 2 | 1 | 1 | | *17* | 4.0 |
| Industrial engineering | | | 1 | 1 | 2 | 1 | | | | | *5* | 1.2 |
| Industrial metals and mining | | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | *7* | 1.6 |
| Industrial transportation | 1 | 3 | 4 | 5 | 3 | 3 | 2 | 2 | 2 | 1 | *26* | 6.1 |
| Life insurance | | | | | | | 1 | 1 | 1 | | *3* | 0.7 |
| Media | | | | 1 | 1 | 1 | 1 | 1 | | | *5* | 1.2 |
| Mining | 1 | 1 | 5 | 4 | 4 | | 2 | 5 | 11 | 11 | *44* | 10.2 |
| Nonlife insurance | 1 | 1 | 1 | | | | | | | | *3* | 0.7 |
| Oil and gas producers | | | | | | 1 | 2 | 2 | 1 | | *6* | 1.4 |
| Pharmaceuticals and biotechnology | | | | | | | | 1 | 1 | 1 | *3* | 0.7 |
| Real estate investment and services | 1 | | | | 1 | 3 | 4 | 3 | 3 | 3 | *18* | 4.2 |
| Real estate investment trusts | 1 | 2 | 2 | 2 | 6 | 12 | 12 | 10 | 7 | 7 | *61* | 14.2 |
| Software and computer services | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | *18* | 4.2 |
| Support services | | | | 1 | 5 | 5 | 5 | 2 | 2 | | *20* | 4.7 |
| Technology hardware and equipment | 1 | 2 | 2 | 1 | | | | | | | *6* | 1.4 |
| Travel and leisure | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | *15* | 3.5 |
| *Total firm years* | *21* | *32* | *46* | *39* | *46* | *48* | *50* | *48* | *50* | *49* | *429* | 100 |
| % | 4.9 | 7.4 | 10.7 | 9.1 | 10.7 | 11.2 | 11.7 | 11.2 | 11.7 | 11.4 | 100 | |

**Source(s):** Author's own work

**Table 2.** Sample composition and distribution

The results of univariate investigations are displayed in Table 4 with Pearson (Spearman) correlations above (below) the diagonal. The significant correlations between the market value of equity and the different variables for gains on bargain purchase offer an initial suggestion that disclosure quality alone does not explain the pricing of gains on bargain purchase. However, gains on bargain purchase are also significantly associated with other components of equity and it is not possible to infer their incremental value-relevance from univariate correlations. Therefore, this paper relies on the results of multivariate regression results for its conclusions.

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Panel A: descriptive statistics

| Variable | Mean | Median | Standard deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| MV | 43.982 | 16.9230 | 67.041 | 0.022 | 371.035 |
| BV | 25.356 | 12.195 | 37.455 | −0.459 | 239.763 |
| NI | 2.965 | 1.124 | 6.258 | −25.917 | 48.476 |
| Impair | 0.441 | 0.000 | 0.497 | 0.000 | 1.000 |
| GBP_Disc | 0.038 | 0.000 | 0.208 | 0.000 | 1.927 |
| GBP_NoDisc | 0.045 | 0.000 | 0.208 | 0.000 | 2.628 |
| GBPold_Disc | 0.058 | 0.000 | 0.250 | 0.000 | 1.839 |
| GBPold_NoDisc | 0.107 | 0.001 | 0.521 | 0.000 | 6.618 |
| Neg | 0.156 | 0.000 | 0.363 | 0.000 | 1.000 |
| *N* | 429 | | | | |

Panel B: differences in means of high and low disclosure quality firms

| Variable | Low disclosure quality (NoDisc) | High disclosure quality (Disc) | Difference in means |
|---|---|---|---|
| Impair | 0.465 | 0.369 | 0.096** |
| | | | (0.023) |
| Neg | 0.142 | 0.198 | −0.056* |
| | | | (0.099) |
| Size | 3.136 | 2.917 | 0.219 |
| | | | (0.154) |
| ROA | 0.045 | 0.052 | −0.007 |
| | | | (0.379) |
| LEV | 0.473 | 0.493 | 0.020 |
| | | | (0.247) |
| GBPmat | 0.127 | 1.271 | −1.144 |
| | | | (0.310) |
| *N* | 318 | 111 | |

**Note(s):** *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index; *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc*; *Impair* is an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise; *GBP_Disc (GBP_NoDisc)* is the gain on bargain purchase per share recognised during the current period where the firm discloses (does not disclose) a supporting reason for its recognition; *GBPold_Disc (GBPold_NoDisc)* is the total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm disclosed (did not disclose) supporting reasons in the period of their first recognition; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise; *Size* is the natural log of total assets. In Panel B, firm-years are stratified into subsamples based on the presence (or absence) of a value for either *GBP_Disc* or *GBPold_Disc*. In this panel, *ROA* is return on assets; *LEV* is gearing, calculated as unadjusted book value over total assets; *GBPmat* is materiality of gains on bargain purchase, calculated as the sum of all gains on bargain purchase reported in the current and preceding two periods over unadjusted net income. *p*-values are indicated in brackets. * and ** denote significance at the 10 and 5% levels respectively
**Source(s):** Author's own work

**Table 3.**
Descriptive statistics

## 6. Multivariate regression results

A Hausman test is significant, and therefore fixed effects for firm, year and industry are included in each of the models (Onali, Ginesti, & Vasilakis, 2017) [9]. The fixed effects control for unobserved differences that are specific to a firm, year, or industry that could impact on results (Breuer & deHaan, 2024), providing some comfort that unobserved elements of firms' information environment do not impact on the main results. However, the additional analyses and robustness tests in Section 6.2. consider the potential impact of firms' information environment on inferences in more detail. Finally, the significance of all multivariate regression results discussed in this section is evaluated with reference to robust

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| | MV | BV | NI | GBP_Disc | GBP_ NoDisc | GBPold_ Disc | GBPold_ Nodisc | Neg | Impair |
|---|---|---|---|---|---|---|---|---|---|
| MV | | 0.724*** | 0.723*** | 0.082* | 0.085* | 0.105** | 0.133*** | −0.198*** | 0.079 |
| | | (<0.001) | (<0.001) | (0.090) | (0.077) | (0.029) | (0.006) | (<0.001) | (0.103) |
| BV | 0.860*** | | 0.763*** | 0.120** | 0.190*** | 0.178*** | 0.289*** | −0.160*** | 0.108** |
| | (<0.001) | | (<0.001) | (0.013) | (<0.001) | (<0.001) | (<0.001) | (0.001) | (0.025) |
| NI | 0.786*** | 0.737*** | | 0.066 | 0.148*** | 0.133*** | 0.380*** | −0.334*** | 0.074 |
| | (<0.001) | (<0.001) | | (0.176) | (0.002) | (0.006) | (<0.001) | (<0.001) | (0.127) |
| GBP_ | −0.062 | −0.042 | −0.069 | | −0.039 | −0.043 | −0.038 | 0.140*** | −0.050 |
| Disc | (0.197) | (0.391) | (0.155) | | (0.416) | (0.378) | (0.437) | (0.004) | 0.303** |
| GBP_ | 0.110** | 0.096** | 0.150*** | −0.240*** | | −0.041 | −0.023 | −0.063 | −0.034 |
| NoDisc | (0.022) | (0.046) | (0.002) | (<0.001) | | (0.393) | (0.639) | (0.193) | (0.489) |
| GBPold_ | −0.062 | −0.022 | −0.026 | −0.062 | −0.207*** | | −0.046 | 0.071 | −0.078 |
| Disc | (0.200) | (0.654) | (0.594) | (0.199) | (<0.001) | | (0.346) | (0.140) | (0.108) |
| GBPold_ | 0.187*** | 0.210*** | 0.137*** | −0.295*** | −0.339*** | −0.371*** | | −0.017 | 0.074 |
| NoDisc | (<0.001) | (<0.001) | (0.005) | (<0.001) | (<0.001) | (<0.001) | | (0.719) | (0.127) |
| Neg | −0.269 | −0.227*** | −0.629*** | 0.087* | −0.141*** | 0.009 | 0.034 | | 0.071 |
| | (<0.001) | (<0.001) | (<0.001) | (0.073) | (0.003) | (0.850) | (0.486) | | (0.143) |
| Impair | 0.098** | 0.123** | 0.066 | −0.038 | 0.022 | −0.064 | 0.105** | 0.071 | |
| | (0.043) | (0.011) | (0.174) | (0.437) | (0.655) | (0.183) | (0.030) | (0.143) | |

**Note(s):** *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index; *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc*; *GBP_Disc (GBP_ NoDisc)* is the gain on bargain purchase per share recognised during the current period where the firm discloses (does not disclose) a supporting reason for its recognition; *GBPold_Disc (GBPold_NoDisc)* is the total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm disclosed (did not disclose) supporting reasons in the period of their first recognition; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise; *Impair* is an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise. Pearson (Spearman) correlations are presented above (below) the diagonal. *p*-values are indicated in brackets. *, ** and *** denote significance at the 10, 5 and 1% levels respectively

**Source(s):** Author's own work

**Table 4.**
Univariate correlations

standard errors clustered in three dimensions (i.e. by firm, year and industry), corrected for the nestedness of fixed effects within the clusters (Petersen, 2009; Cameron, Gelbach, & Miller, 2011).

### *6.1 Main multivariate regression results*

Multivariate regression results for model (1) are displayed in Table 5. The first column in this table displays a preliminary result from a basic regression of market value of equity (*MV*) on book value of equity and net income (where the accounting variables are the reported variables – i.e. unadjusted for gains on bargain purchase). This model permits an initial check of sample characteristics and reflects that the coefficient of book value (0.701) is lower than its theoretical level of one, while the coefficient of earnings (0.591) does not match theory, which dictates that it should be higher than one (Barth *et al.*, 2001; Aledo Martínez *et al.*, 2020).

However, theoretical expectations for regression coefficients for book value and earnings in value-relevance models are generally developed for large samples, while excluding firms that report a loss (Aledo Martínez *et al.*, 2020) [10]. In addition, regression coefficients are more likely to deviate from theoretical expectations for samples dominated by smaller firms (Lara, Osma, & Noguer, 2006; Aledo Martínez *et al.*, 2020). The sample characteristics discussed in Section 5 therefore imply that regression coefficients are unlikely to match theoretical expectations irrespective of the presence or absence of the variables of interest.

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| | Preliminary result | Model (1) result |
|---|---|---|
| *Main variables* | | |
| BV | 0.701*** | 0.745*** |
| | (0.001) | (0.004) |
| NI | 0.591* | 0.599* |
| | (0.053) | (0.067) |
| GBP_Disc | | 19.308*** |
| | | (0.007) |
| GBP_NoDisc | | 4.173** |
| | | (0.010) |
| *Control variables* | | |
| Neg | 10.825*** | 10.680*** |
| | (0.001) | (<0.001) |
| Neg*BV | −0.749*** | −0.684*** |
| | (<0.001) | (<0.001) |
| Neg*NI | 1.437*** | 1.591*** |
| | (<0.001) | (0.002) |
| Neg*GBP_Disc | | −25.160** |
| | | (0.027) |
| Neg*GBP_NoDisc | | 67.026*** |
| | | (0.003) |
| *Fixed effects* | | |
| Firm | Yes | Yes |
| Year | Yes | Yes |
| Industry | Yes | Yes |
| *N* | 429 | 429 |
| Within $R^2$ | 21.2% | 23.3% |

**Note(s):** The dependent variable is *MV* for all the regressions. *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index. For the preliminary result, *BV* and *NI* reflect the reported (unadjusted) variables. In the main analysis, *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc*; *GBP_Disc (GBP_NoDisc)* is the gain on bargain purchase per share recognised during the current period where *the* firm discloses (does not disclose) a supporting reason for its recognition; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise. *p*-values from two-tailed tests are indicated in brackets. *, ** and *** denote significance at the 10, 5 and 1% levels respectively. Significance is determined based on robust standard errors clustered in three dimensions, namely firm, year and industry (Cameron *et al.*, 2011). An adjustment is made where the variance–covariance matrix is not positive-semidefinite

**Source(s):** Author's own work

**Table 5.**
Initial multivariate regression results

Furthermore, inherent measurement uncertainty in accounting numbers often means that coefficients differ from expected theoretical levels and such deviation does not by itself invalidate inferences (Barth, 1991, 1994).

The second column in Table 5 contains the results of model (1). Although the theoretical inferences from coefficients for this sample should be interpreted with caution as discussed above, it is worth noting that a coefficient of higher than one for both *GBP_Disc* and *GBP_NoDisc* can be theoretically valid. Prior research argues that gains on bargain purchase may represent future profits or losses (i.e. unrecognised assets or liabilities) that could realise over multiple periods (Comiskey & Mulford, 2011; Gaharan, 2015; Boehm *et al.*, 2016; Kabir, 2020) and unrecognised assets and liabilities theoretically have coefficients greater than one (Barth *et al.*, 2001; Aledo Martínez *et al.*, 2020).

The second column in Table 5 shows that both *GBP_Disc* ($p = 0.007$) and *GBP_NoDisc* ($p = 0.010$) are positive and significant, therefore representing economic gains (unrecognised

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assets). In contrast, Elnahass and Doukakis (2019) conclude that only gains on bargain purchase with high disclosure quality are value-relevant. Given that this study reflects conditions of high disclosure prominence, differences in findings imply that disclosure quality in the UK setting of Elnahass and Doukakis (2019) might be a proxy for heightened investor awareness, rather than higher financial reporting quality. Therefore, further investigation of cross-sectional differences in the pricing of gains on bargain purchase under conditions of high disclosure prominence appears warranted.

These results are presented in Panel A of Table 6, where the first column reflects the results of model (2) before considering the impact of overpayment track records on the pricing of gains on bargain purchase (i.e. without the interactions between *Impair* and the gain on bargain purchase variables). Gains on bargain purchase with high disclosure quality recognised in earnings during the current year (*GBP_Disc*) remain significant at the 1% level ($p < 0.001$). However, gains on bargain purchase with low disclosure quality recognised in earnings during the current year (*GBP_NoDisc*) are now only significant at the 10% level ($p = 0.078$). Furthermore, older gains on bargain purchase are reflected as insignificant, irrespective of whether the level of disclosure quality at initial recognition thereof was high (*GBPold_Disc*, $p = 0.746$) or low (*GBPold_NoDisc*, $p = 0.236$). Similar to earlier results, these findings suggest that disclosure quality alone does not correlate with cross-sectional differences in the pricing of gains on bargain purchase when disclosure prominence is high.

When the coefficient of gains on bargain purchase is permitted to vary depending on overpayment track record (by including interactions between *Impair* and the gains on bargain purchase variables) in model (2), results are substantially different from those reported earlier. The second column of Panel A in Table 6 reflects that gains on bargain purchase with high disclosure quality recognised in earnings during the current year (*GBP_Disc*) are priced negatively by investors ($p = 0.001$). This is consistent with the theoretical view that gains on bargain purchase represent future losses or unrecognised liabilities rather than economic gains (Gaharan, 2015; Boehm *et al.*, 2016; Amano, 2022). However, when such gains on bargain purchase have greater recognition credibility (*Impair*GBP_Disc*) investors price these gains on bargain purchase significantly more positively ($p < 0.001$). In fact, the first test in Panel B of Table 6 shows that the sum of the two coefficients is also positive and significant ($p < 0.001$), in line with the opposite theoretical viewpoint that gains on bargain can represent gains or unrecognised assets (Comiskey & Mulford, 2011; Kabir, 2020).

In contrast, when considering the results for gains on bargain purchase with low disclosure quality recognised in earnings during the current year (*GBP_NoDisc)*, no significance for these gains on bargain purchase ($p = 0.646$) and no gain in credibility from a firm's history of overpayment (*Impair*GBP_NoDisc* is insignificant, $p = 0.844$) are detected in Panel A. The sum of the two coefficients in Panel B also reflects as insignificant ($p = 0.743$). Collectively, these results imply that investors price gains on bargain purchase as economic gains only for firms where their credibility is supported by an overpayment track record combined with high disclosure quality. Gains on bargain purchase that lack one or both measures of credibility are priced as liabilities or not priced at all.

In the case of older gains on bargain purchase, old gains on bargain purchase have been separated out from equity in model (2), so that a positive coefficient implies that this component of equity is being priced as an asset (gain) and a negative coefficient implies pricing as a liability (loss). In this respect, column two of Panel A of Table 6 reflects significantly negative coefficients for older gains on bargain purchase, irrespective of whether disclosure quality at initial recognition was high (*GBPold_Disc*, $p = 0.008$) or low (*GBP_NoDisc*, $p = 0.064$). These results are therefore in line with the theoretical argument that gains on bargain purchase represent future losses and liabilities which emerge on the balance sheet in the years after initial recognition thereof.

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Panel A: regression results

| Variable | Model (2) without acquisition track record interactions | Model (2) | Additional control variables | High information asymmetry subsample | Actively traded subsample |
|---|---|---|---|---|---|
| *Main variables* | | | | | |
| BV | 1.221*** | 1.422*** | 1.411*** | 1.661*** | 1.459*** |
| | (0.001) | (<0.001) | (<0.001) | (0.003) | (<0.001) |
| NI | −1.567 | −1.048 | −1.113 | 0.384 | −1.079 |
| | (0.152) | (0.275) | (0.201) | (0.716) | (0.172) |
| Impair | −1.252 | −2.992 | −3.389** | 0.267 | −5.578 |
| | (0.196) | (0.170) | (0.011) | (0.934) | (0.117) |
| GBP_Disc | 26.557*** | −20.881*** | −22.662*** | 19.765 | −22.319*** |
| | (0.001) | (0.001) | (0.009) | (0.606) | (<0.001) |
| GBP_NoDisc | 9.998* | 3.401 | 2.328 | 1.353 | 2.763 |
| | (0.078) | (0.646) | (0.748) | (0.830) | (0.719) |
| GBPold_Disc | 3.128 | −20.876*** | −22.404*** | 20.981 | −21.538** |
| | (0.746) | (0.008) | (0.002) | (0.588) | (0.014) |
| GBPold_NoDisc | 3.364 | −18.059* | −18.616* | −38.846*** | −21.102** |
| | (0.236) | (0.064) | (0.056) | (0.010) | (0.042) |
| Impair*GBP_ | | 68.652*** | 70.527*** | 151.626*** | 72.993*** |
| Disc | | (<0.001) | (<0.001) | (<0.001) | (<0.001) |
| Impair*GBP_ | | 3.414 | 2.306 | 21.327*** | 7.532 |
| NoDisc | | (0.844) | (0.884) | (<0.001) | (0.661) |
| Impair*GBPold_ | | 32.957*** | 34.950*** | 106.538*** | 35.225*** |
| Disc | | (0.002) | (0.008) | (<0.001) | (0.001) |
| Impair*GBPold_ | | 24.272** | 24.495** | 45.522** | 28.496** |
| NoDisc | | (0.031) | (0.026) | (0.014) | (0.026) |
| *Control variables* | | | | | |
| Impair*BV | −0.573* | −0.634** | −0.639** | −0.753*** | −0.623*** |
| | (0.085) | (0.020) | (0.019) | (0.004) | (0.008) |
| Impair*NI | 1.983* | 1.271 | 1.251 | −0.367 | 1.290** |
| | (0.056) | (0.128) | (0.124) | (0.970) | (0.041) |
| Neg | 10.192*** | 9.016*** | 11.558*** | 12.993*** | 11.334*** |
| | (<0.001) | (<0.001) | (0.004) | (0.001) | (0.002) |
| Neg*BV | −0.918*** | −0.960*** | −1.029*** | −0.776*** | −1.024*** |
| | (0.001) | (<0.001) | (<0.001) | (0.001) | (<0.001) |
| Neg*NI | 1.726*** | 1.410** | 1.371** | 1.119 | 1.354** |
| | (<0.001) | (0.010) | (0.012) | (0.232) | (0.014) |
| Neg*GBP_Disc | −30.275*** | 2.820 | −1.057 | −64.748*** | 1.691 |
| | (<0.001) | (0.703) | (0.906) | (0.006) | (0.888) |
| Neg*GBP_ | 58.588*** | 53.277** | 47.817** | 126.588*** | 72.675*** |
| NoDisc | (<0.001) | (0.010) | (0.015) | (0.007) | (<0.001) |
| Neg*GBPold_ | 2.261 | 3.645 | −0.585 | −45.949*** | −0.258 |
| Disc | (0.761) | (0.681) | (0.943) | (0.010) | (0.986) |
| Neg*GBPold_ | 16.289 | 17.407 | 17.519 | 17.585* | 17.283 |
| NoDisc | (0.183) | (0.210) | (0.217) | (0.052) | (0.260) |
| Size | | | 2.452* | | |
| | | | (0.095) | | |
| ROA | | | 0.379 | | |
| | | | (0.950) | | |
| LEV | | | 15.845*** | | |
| | | | (0.002) | | |

**Table 6.**
Main multivariate regression results

(*continued*)

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Panel A: regression results

| Variable | Model (2) without acquisition track record interactions | Model (2) | Additional control variables | High information asymmetry subsample | Actively traded subsample |
|---|---|---|---|---|---|
| *Fixed effects* | | | | | |
| Firm | Yes | Yes | Yes | Yes | Yes |
| Year | Yes | Yes | Yes | Yes | Yes |
| Industry | Yes | Yes | Yes | Yes | Yes |
| *N* | 429 | 429 | 429 | 265 | 351 |
| Within $R^2$ | 29.7% | 35.0% | 35.4% | 47.9% | 35.3% |

Panel B: sum of coefficient tests

| Sum of coefficients tested | Model (2) | Additional control variables | High information asymmetry subsample | Actively traded subsample |
|---|---|---|---|---|
| GBP_Disc + Impair*GBP_Disc = 0 | 5.662*** (<0.001) | 2.959*** (0.003) | 3.279*** (0.001) | 5.000*** (<0.001) |
| GBP_Nodisc + Impair*GBP_Nodisc = 0 | 0.329 (0.743) | 0.241 (0.810) | 2.948*** (<0.001) | 0.565 (0.573) |
| GBPold_Disc + Impair*GBPold_Disc = 0 | 0.991 (0.322) | 0.907 (0.365) | 2.650*** (0.009) | 1.130 (0.259) |
| GBPold_Nodisc + Impair*GBPold_Nodisc = 0 | 0.449 (0.654) | 0.341 (0.734) | 0.258 (0.796) | 0.385 (0.701) |

**Note(s):** The dependent variable is *MV* for all the regressions. *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index; *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc*; *Impair* is an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise; *GBP_Disc (GBP_NoDisc)* is the gain on bargain purchase per share recognised during the current period where the firm discloses (does not disclose) a supporting reason for its recognition; *GBPold_Disc (GBPold_NoDisc)* is the total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm disclosed (did not disclose) supporting reasons in the period of their first recognition; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise; *Size* is the natural log of total assets; *ROA* is return on assets; *LEV* is gearing, calculated as unadjusted book value over total assets. *p*-values from two-tailed tests are indicated in brackets. *, ** and *** denote significance at the 10, 5 and 1% levels respectively. Significance is determined based on robust standard errors clustered in three dimensions, namely firm, year and industry (Cameron *et al.*, 2011). An adjustment is made where the variance–covariance matrix is not positive-semidefinite

**Source(s):** Author's own work

**Table 6.**

Nevertheless, Panel A also shows that the coefficients of older gains on bargain purchase turn significantly more positive when an overpayment track record suggests that they are more likely to represent unrecognised assets than unrecognised liabilities. More specifically, both *Impair*GBPold_Disc* ($p = 0.002$) and *Impair*GBPold_NoDisc* ($p = 0.031$) were positive and significant. In this case, the tests in Panel B reflect that the combined coefficient of the general effect and the impact of a firm's overpayment history renders older gains on bargain purchase insignificant, irrespective of disclosure quality at initial recognition. This would imply that credible gains on bargain purchase represent transitory economic gains which are no longer value-relevant two years after initial recognition. This is consistent with prior research findings that the value-relevance of goodwill similarly dissipates after two years (Bugeja & Gallery, 2006).

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Collectively, the main regression results therefore suggest that, in general, gains on bargain purchase are priced as future losses (unrecognised liabilities). This contrasts with prior research that concludes that gains on bargain purchase are often viewed as transitory economic gains by investors (Dunn *et al.*, 2016; Elnahass & Doukakis, 2019). The findings of this paper imply that a necessary precondition for gains on bargain purchase to be priced as economic gains is recognition credibility supported by a firm's overpayment track record. However, such economic gains remain transitory as the results in Panel B of Table 6 imply that even credible gains on bargain purchase do not retain net value-relevance within two years after the year of first recognition.

*6.2 Results of robustness tests and additional analyses*

The inclusion of firm and industry fixed effects controls for the possibility that observed or unobserved time-invariant characteristics correlate with both the overpayment track record and the cross-sectional variation in gains on bargain purchase of a firm. However, this section contains additional direct investigations of the impact of the information environment on the main regression results. Two commonly used measures of a firm's information environment are firm size and information asymmetry (von Koch & Willesson, 2020).

Therefore, the first additional investigation adds control variables for firm size, firm profitability (return on assets) and gearing (firm risk) to the regression model. Following Elnahass and Doukakis (2019), these control variables reflect observable, but time-variable differences between firms which could impact on the pricing of accounting information. Results tabulated in column three of Panels A and B in Table 6 show that the main regression results are qualitatively unchanged.

The second additional investigation considers information asymmetry as a measure of differences in firms' information environment. High information asymmetry reduces the value-relevance of accounting information (Curtis, 2012; Gassen, Skaife, & Veenman, 2020). It is a particularly relevant alternative explanation for instances where gains on bargain purchase lack credibility, as gains on bargain purchase arise from complex accounting treatments and have high inherent information asymmetry. Therefore, gains on bargain purchase are less likely to be value-relevant when the information environment is already opaque. Sample firms with high information asymmetry are identified using the percentage of zero daily returns measure of Lesmond, Ogden, and Trzcinka (1999). This measure is directly related to the bid-ask spread (Lesmond *et al.*, 1999) and is a reliable measure of the degree to which information asymmetry affects the value-relevance of firm-specific information (Gassen *et al.*, 2020). It is calculated by determining the number of trading days on which the closing price is different from that of the previous day. Firm-years for which the closing price differs for at least 200 days during the year are identified as firms with high information asymmetry [11].

Regression results for firms with high information asymmetry are displayed in column four of Panel A in Table 6. As expected, gains on bargain purchase reported in the current period (*GBP_Disc* and *GBP_NoDisc*) are not value-relevant for firms with high information asymmetry, irrespective of their disclosure quality ($p > 0.600$). Older gains on bargain purchase with low disclosure quality (*GBPold_NoDisc*) lack credibility and are priced as liabilities ($p = 0.010$), while those with high disclosure quality (*GBPold_Disc*) are not value-relevant ($p = 0.588$). Nevertheless, the various interactions with *Impair* show that the value-relevance of all gains on bargain purchases variables is boosted by a record of chronic overpayment ($p < 0.015$ for all interactions) for firms with high information asymmetry.

The net pricing of gains on bargain purchase combined with overpayment track records is again reflected in Panel B of Table 6. This shows that the boost to credibility from a history of

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overpaying results in all gains on bargain purchase being priced as economic gains in the year of recognition, irrespective of disclosure quality ($p < 0.010$ for both tests). In the case of older gains on bargain purchase, Panel B shows that older gains on bargain purchase that lack disclosure quality are no longer priced as liabilities when their recognition is supported by an overpayment track record ($p = 0.796$). In contrast, older gains on bargain purchase with high disclosure quality are priced as economic gains when their credibility is supported by a firm's overpayment track record ($p = 0.009$). This raises the possibility that investors price these as recurring gains, which would be rational if the gains on bargain purchase represent unrecognised assets on which a multi-period return is expected. Overall, these results therefore suggest that, although information asymmetry reduces the credibility conveyed by disclosure quality, it does not affect the credibility conveyed by a history of overpaying.

The third additional investigation considers the degree to which a firm's shares are actively traded as a measure of the firm's information environment. Several prior studies focus on larger firms, arguing that this increases the validity of results (Hodgson & Stevenson-Clarke, 2000; Brimble & Hodgson, 2007). Underlying to this argument is that larger firms have better price formation mechanisms as they are more actively traded and exhibit lower information asymmetry. As a result, active trading is a joint test of greater firm size and low information asymmetry. Sample firm-years are identified as actively traded if there is a volume of shares traded on at least 200 trading days during the year [12]. Results of these investigations are displayed in the final column of Panels A and B of Table 6, which shows that inferences are qualitatively unchanged from the main regression results.

Collectively, the results reported in this section are therefore qualitatively unchanged from the main regression results. They reflect that inferences are robust to various ways of controlling for differences in firms' information environment.

### *6.3 Materiality of gains on bargain purchase*

It could be that firms only provide high-quality disclosure for gains on bargain purchase that are material and that investors only price material gains on bargain purchase. As the regression models separate gains on bargain purchase based on disclosure quality, the interactions with the overpayment track record could be similarly affected by materiality. To further investigate this possibility, two additional analyses were performed.

Firstly, a variable to control for the materiality of gains on bargain purchase (*GBPmat*) is introduced into the model. As reflected in the first column in Panel A of Table 7, this variable is significant ($p = 0.085$), but inferences remain qualitatively unchanged from the main regression results in both Panels A and B. To consider the possibility that materiality interacts with other firm-level characteristics, a model which includes additional controls for firm size, firm profitability (return on assets) and gearing is also considered. The second column in Panel A of Table 7 reveals that the control variable for the materiality of gains on bargain purchase (*GBPmat*) is again significant ($p = 0.005$), but inferences remain otherwise qualitatively unchanged in both Panels A and B.

Secondly, a model in which gains on bargain purchase are not separated based on disclosure quality is considered. The first column in Panel A of Table 8 focuses solely on the overpayment track record. Gains on bargain purchase reported in the current year (*GBP*) are not value-relevant ($p = 0.562$), but the credibility of recognition associated with a firm's history of overpaying (*Impair*GBP*) has a significant positive impact on the pricing of gains on bargain purchase ($p = 0.039$). In addition, as shown in Panel B, investors price the sum of the coefficients as an economic gain ($p = 0.067$). In the case of older gains on bargain purchase, these are priced as liabilities ($p < 0.001$). However, when this is combined with a firm's overpayment track record, the net effect is that investors price older gains on bargain purchase as economic gains ($p = 0.082$).

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| Panel A: regression results<br>Variable | Controlling for materiality | Additional control variables |
|---|---|---|
| *Main variables* | | |
| BV | 1.425*** | 1.413*** |
| | (<0.001) | (<0.001) |
| NI | −1.041 | −1.122 |
| | (0.275) | (0.194) |
| Impair | −2.963 | −3.351*** |
| | (0.148) | (0.001) |
| GBP_Disc | −21.905*** | −23.753*** |
| | (<0.001) | (0.002) |
| GBP_NoDisc | 3.890 | 2.841 |
| | (0.600) | (0.695) |
| GBPold_Disc | −22.032** | −23.643*** |
| | (0.013) | (0.006) |
| GBPold_NoDisc | −17.785* | −18.262* |
| | (0.070) | (0.062) |
| Impair*GBP_Disc | 68.942*** | 70.682*** |
| | (<0.001) | (<0.001) |
| Impair*GBP_NoDisc | 3.289 | 2.242 |
| | (0.846) | (0.884) |
| Impair*GBPold_Disc | 33.244*** | 35.148*** |
| | (0.002) | (0.007) |
| Impair*GBPold_NoDisc | 24.077** | 24.234** |
| | (0.035) | (0.031) |
| *Control variables* | | |
| Impair*BV | −0.633** | −0.639** |
| | (0.020) | (0.020) |
| Impair*NI | 1.262 | 1.246 |
| | (0.132) | (0.125) |
| Neg | 9.428*** | 12.169*** |
| | (<0.001) | (0.004) |
| Neg*BV | −0.981*** | −1.054*** |
| | (<0.001) | (<0.001) |
| Neg*NI | 1.438*** | 1.392*** |
| | (0.004) | (0.008) |
| Neg*GBP_Disc | 4.022 | 0.165 |
| | (0.620) | (0.986) |
| Neg*GBP_NoDisc | 51.916** | 45.577** |
| | (0.017) | (0.031) |
| Neg*GBPold_Disc | 4.889 | 0.740 |
| | (0.618) | (0.931) |
| Neg*GBPold_NoDisc | 18.752 | 18.926 |
| | (0.188) | (0.186) |
| Size | | 2.582* |
| | | (0.077) |
| ROA | | 1.982 |
| | | (0.736) |
| LEV | | 15.194*** |
| | | (<0.001) |
| GBPmat | 0.069* | 0.074*** |
| | (0.085) | (0.005) |

**Table 7.**
Multivariate regression results when controlling for materiality

(*continued*)

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| Panel A: regression results<br>Variable | Controlling for materiality | Additional control variables |
|---|---|---|
| *Fixed effects* | | |
| Firm | Yes | Yes |
| Year | Yes | Yes |
| Industry | Yes | Yes |
| *N* | 429 | 429 |
| Within $R^2$ | 35.0% | 35.4% |

| Panel B: sum of coefficient tests<br>Sum of coefficients tested | Controlling for materiality | Additional control variables |
|---|---|---|
| GBP_Disc + Impair*GBP_Disc = 0 | 6.303*** | 3.106** |
| | (<0.001) | (0.002) |
| GBP_ Nodisc + Impair*GBP_ Nodisc = 0 | 0.352 | 0.269 |
| | (0.725) | (0.788) |
| GBPold_Disc + Impair*GBPold_Disc = 0 | 0.880 | 0.789 |
| | (0.379) | (0.431) |
| GBPold_Nodisc + Impair*GBPold_Nodisc = 0 | 0.351 | 0.339 |
| | (0.726) | (0.735) |

**Note(s):** The dependent variable is *MV* for all the regressions. *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index; *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc*; *Impair* is an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise; *GBP_Disc (GBP_NoDisc)* is the gain on bargain purchase per share recognised during the current period where the firm discloses (does not disclose) a supporting reason for its recognition; *GBPold_Disc (GBPold_NoDisc)* is the total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm disclosed (did not disclose) supporting reasons in the period of their first recognition; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise; *Size* is the natural log of total assets; *ROA* is return on assets; *LEV* is gearing, calculated as unadjusted book value over total assets; *GBPmat* is materiality of gains on bargain purchase, calculated as the sum of all gains on bargain purchase reported in the current and preceding two periods over unadjusted net income. *p*-values from two-tailed tests are indicated in brackets. *, ** and *** denote significance at the 10, 5 and 1% levels respectively. Significance is determined based on robust standard errors clustered in three dimensions, namely firm, year and industry (Cameron *et al.*, 2011). An adjustment is made where the variance–covariance matrix is not positive-semidefinite

**Source(s):** Author's own work

**Table 7.**

In the second column of Table 8, disclosure quality is introduced through indicator variables, where *Dind_GBP* (*Dind_GBPold*) is set to one if disclosure quality was high at initial recognition of a gain on bargain purchase (old gain on bargain purchase) and zero otherwise. As reflected in Panel A of this table, the base outcome is that gains on bargain purchase recognised in earnings during the current period (*GBP*) are not value-relevant ($p = 0.517$). Furthermore, the interaction with the disclosure quality indicator (*Dind_GBP*GBP*) is insignificant ($p = 0.832$), which implies that the value-relevance of gains on bargain purchase recognised in earnings is not altered by a lack of disclosure quality. This is similarly reflected in Panel B, where a test of the sum of the coefficients of these variables shows that gains on bargain purchase are not priced, irrespective of disclosure quality ($p = 0.814$). Similarly, Panel A also shows that older gains on bargain purchase (*GBPold*) are priced as liabilities ($p = 0.005$) and the interaction with the disclosure quality indicator (*Dind_GBP*GBPold*) is insignificant ($p = 0.699$). As the sum of these coefficients remains significantly negative as displayed in Panel B ($p = 0.094$), this implies that older gains on bargain purchase continue to be priced as liabilities, even if their disclosure quality is high.

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| Panel A: regression results<br>Variable | Acquisition track record | Acquisition track record and disclosure quality |
|---|---|---|
| *Main variables* | | |
| BV | 1.423*** | 1.425*** |
| | (<0.001) | (<0.001) |
| NI | −1.009 | −0.994 |
| | (0.301) | (0.261) |
| Impair | −5.199** | −5.267* |
| | (0.022) | (0.082) |
| GBP | −3.054 | −3.269 |
| | (0.562) | (0.517) |
| GBPold | −18.952*** | −18.814*** |
| | (<0.001) | (0.005) |
| Impair*GBP | 35.082** | 34.492** |
| | (0.039) | (0.029) |
| Impair*GBPold | 27.130*** | 26.963*** |
| | (<0.001) | (<0.001) |
| Dind_GBP | | −0.044 |
| | | (0.957) |
| Dind_GBPold | | 4.976 |
| | | (0.251) |
| Dind_GBP*GBP | | 1.113 |
| | | (0.832) |
| Dind_GBPold*GBPold | | −4.373 |
| | | (0.699) |
| *Control variables* | | |
| Impair*BV | −0.582** | −0.578* |
| | (0.050) | (0.655) |
| Impair*NI | 1.217 | 1.205* |
| | (0.102) | (0.079) |
| Neg | 9.965*** | 10.446*** |
| | (0.003) | (0.004) |
| Neg*BV | −0.853*** | −0.860*** |
| | (<0.001) | (<0.001) |
| Neg*NI | 1.442*** | 1.403*** |
| | (0.005) | (0.007) |
| Neg*GBP | −15.692 | −16.483 |
| | (0.107) | (0.381) |
| Neg*GBPold | 4.442 | 4.148 |
| | (0.391) | (0.485) |
| Fixed effects | | |
| Firm | Yes | Yes |
| Year | Yes | Yes |
| Industry | Yes | Yes |
| *N* | 429 | 429 |
| Within $R^2$ | 32.4% | 32.7% |

| Panel B: Sum of coefficient tests<br>Sum of coefficients tested | Acquisition track record | Acquisition track record and disclosure quality |
|---|---|---|
| GBP + Impair*GBP = 0 | 1.838* | 1.937* |
| | (0.067) | (0.053) |

**Table 8.**
Multivariate regression results with disclosure quality as an indicator variable

(*continued*)

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| Panel B: Sum of coefficient tests<br>Sum of coefficients tested | Acquisition track record | Acquisition track record and disclosure quality |
|---|---|---|
| GBPold + Impair*GBPold = 0 | 1.742*<br>(0.082) | 1.074<br>(0.283) |
| GBP + Dind_GBP*GBP = 0 | | 0.235<br>(0.814) |
| GBPold + Dind_<br>GBPold*GBPold = 0 | | 1.678*<br>(0.094) |

**Note(s):** The dependent variable is *MV* for all the regressions. *MV* is market value per share, six months after reporting date, calculated using a firm-specific total return index; *BV* is book value per share, excluding all gains on bargain purchase variables; *NI* is earnings attributable to ordinary shareholders per share, excluding *GBP*; *Impair* is an indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise; *Dind_GBP (Dind_GBPold)* is an indicator variable set to one if the firm discloses (disclosed) a supporting reason in the period of recognising *GBP* (*GBPold*) and zero otherwise; *GBP* is the gain on bargain purchase per share recognised during the current period; *GBPold* is the total gains on bargain purchase per share recognised in earnings over the preceding two periods; *Neg* is an indicator variable set to one if *NI* is negative and zero otherwise. *p*-values from two-tailed tests are indicated in brackets. *, ** and *** denote significance at the 10, 5 and 1% levels respectively. Significance is determined based on robust standard errors clustered in three dimensions, namely firm, year and industry (Cameron *et al.*, 2011). An adjustment is made where the variance–covariance matrix is not positive-semidefinite

**Source(s):** Author's own work

**Table 8.**

In contrast, results in Panel A reflect that interactions with overpayment track records (interactions with *Impair*) continue to boost the credibility of gains on bargain purchase that are recognised in earnings during the current period (*Impair*GBP*, $p = 0.029$). Panel B reflects that the sum of coefficients *GBP* and *Impair*GBP* are significantly positive ($p = 0.053$) and implies that gains on bargain purchase are priced as economic gains when an overpayment track record supports the credibility of that recognition. In the case of older gains on bargain purchase, Panel A shows that a history of overpaying significantly reduces the overall negative coefficient (*Impair*GBPold*, $p < 0.001$). The sum of coefficients *GBPold* and *Impair*GBPold* is insignificant in Panel B ($p = 0.283$) and older gains on bargain purchase are therefore not priced as liabilities when their recognition credibility derives from an overpayment track record.

The findings using disclosure quality indicators are therefore consistent with the main regression results. Firstly, gains on bargain purchase are priced as economic gains only when their recognition credibility is supported by an overpayment track record. Secondly, older gains on bargain purchase are priced as liabilities, unless their initial recognition was rendered credible by a history of overpaying. Disclosure quality does not affect value-relevance inferences.

Overall, the results in this subsection therefore suggest that the main inferences are not driven by the relative materiality of gains on bargain purchase. In addition, a firm's overpayment track record (actions) appears to have a bigger impact on cross-sectional differences in the pricing of gains on bargain purchase than disclosure quality (words).

## 7. Summary and conclusion

The results of this paper deepen our understanding of the value-relevance of gains on bargain purchase, which has not attracted much research attention (Elnahass & Doukakis, 2019). Under conditions of high disclosure prominence, gains on bargain purchase are value-

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relevant irrespective of disclosure quality. However, gains on bargain purchase are most credible (and therefore most likely to be priced as economic gains) when an overpayment track record combines with a commitment to financial reporting quality. Older gains on bargain purchase are priced as liabilities. However, in instances where a history of overpaying increases their recognition credibility, older gains on bargain purchase are not value-relevant irrespective of disclosure quality. Overall, findings therefore suggest that a firm's overpayment track record is an important factor in explaining cross-sectional differences in the pricing of gains on bargain purchase and that a firm's past actions (overpayment track record) weigh more heavily with investors in this respect than its words (disclosure quality).

The findings of this paper make several contributions. Firstly, the results imply that all gains on bargain purchase with high disclosure prominence (low disclosure processing costs) are value-relevant. This contrasts with prior research which tends to find that gains on bargain purchase require high quality disclosure to be priced (Elnahass & Doukakis, 2019) or that they are only prices when the target is in distress (Dunn *et al.*, 2016). The high disclosure prominence of gains on bargain purchase results from inclusion in an earnings reconciliation. This suggests that raising disclosure prominence could be a cost-effective alternative to reduce the disclosure processing cost for many complex accounting phenomena. Given the high cost associated with many other ways of increasing financial reporting quality (Pawsey, 2017; Lisowsky & Minnis, 2020), policy-setters may wish to give due consideration to potentially simpler ways to achieve the desired outcome.

Secondly, the results reveal nuanced pricing differences between gains on bargain purchase based on a firm's acquisition track record. This reconciles differing views of the economic nature of gains on bargain purchase and offers empirical evidence of the circumstances under which gains on bargain purchase are priced as economic gains or economic losses (financial liabilities). Prior empirical evidence only reveals circumstances under which gains on bargain purchase may be priced as economic gains, while ignoring a firm's acquisition track record (Dunn *et al.*, 2016; Elnahass & Doukakis, 2019).

Thirdly, findings suggest that a relatively simple measure of a firm's acquisition track record (prior impairment losses) is reliably associated with pricing differences of gains on bargain purchase. This is a cost-effective measure to implement when seeking information on how market participants are likely to assess the credibility of a gain on bargain purchase, which is useful to investors and preparers alike. Fourthly, the results suggest that preparers need to carefully weigh the implications of increased disclosure prominence of an accounting phenomenon. Higher disclosure prominence could lead to greater value-relevance for the information, but the results of this paper suggest that disclosure practices alone do not outweigh a firm's past actions. Finally, this paper adds to growing evidence that "anomalous" gains on bargain purchases (IASB – International Accounting Standards Board, 2020: BC371) occur relatively frequently and are priced by equity markets. Therefore, standard-setters may wish to reassess if existing guidance around the accounting treatment and disclosure of gains on bargain purchase is sufficient and appropriate.

However, there are some limitations to the generalisability of these results, which could be specific to the sample period, sample country, or sample firms utilised. In addition, this paper considers the impact of a firm's overpayment track record on gains on bargain purchase when disclosure prominence is high. Further research is required to determine if the overpayment track record similarly communicates the credibility of recognising a gain on bargain purchase in circumstances where disclosure prominence is lower. Finally, as with most value-relevance research, it is not possible to control for all potential characteristics of a firm's information environment (some of which may be unobserved) that could correlate with the observed variables and thereby impact inferences.

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## Notes

1. A value-relevant amount has a predicted association with market value of equity (Barth *et al.*, 2001) and correlates with the outcome of investor decisions.
2. Impairment losses of goodwill are required to be disclosed in the reconciliations of headline earnings and are cross-checked against the Refinitiv database as part of the hand-collection process.
3. If goodwill impairment relates to low acquisition date accounting quality, rather than overpayment, the interaction with gains on bargain purchase should *reduce* their overall disclosure quality and resultant value-relevance. This is the opposite of the reported outcomes.
4. *MV* is specified six months after reporting date to allow for the information dissemination process in a market where firms report semi-annually (Veith & Werner, 2014). To compensate for the potential confounding impact of corporate actions such as dividends, *MV* is obtained at reporting date and adjusted to a value six months after reporting date using a firm-specific total return index.
5. Dunn *et al.* (2016) argue that there is no theoretical case to expect that gains on bargain purchase would be priced differently between profit-making and loss-making firms. However, gains on bargain purchase are included in book value and net income. Therefore, were gains on bargain purchase not the variable of interest, the inherent assumption would be that their pricing is affected by reporting a loss. This assumption should be reflected consistently when gains on bargain purchase represent the variable of interest.
6. Gains on bargain purchase of preceding periods would be included in book value of equity, but not in earnings for the current period. Therefore, NI need not be further adjusted from model (1) when older gains on bargain purchase are separated out in model (2).
7. In limited instances where the sector field on the database is blank, firms are manually assigned to sectors using other available data, such as subsector classifications on the database and sector classifications made publicly available by the JSE.
8. Elnahass & Doukakis (2019) control for the disproportionate size of the financial services industry in their sample by including a fixed effect (indicator variable) for the financial services industry. The current paper similarly controls for this impact by including fixed effects for all industries and clustering standard errors in three dimensions (by firm, year and industry).
9. Industry shocks can be correlated over different years, which requires clustering by industry and not only by firm and year (Conley, Gonçalves, & Hansen, 2018). Moreover, industry correlates with both the dependent and independent variables and remains constant within the firm and year fixed effect groups. Therefore, industry fixed effects are required to reduce the risk of type 1 errors (Breuer and deHaan, 2024).
10. When firms that report a loss are excluded from the sample, untabulated results from the preliminary regression detect qualitatively similar coefficients (and levels of significance) of 0.691 ($p = 0.004$) for book value of equity and 0.733 ($p = 0.076$) for earnings. Therefore, the deviation of the coefficients from expected theoretical levels is not driven by inadequate controls for firms that report a loss.
11. There are roughly 260 weekdays in each calendar year. As South Africa has 12 fixed public holidays a year, roughly 240–250 trading days are available each year. A firm-year for which the closing price has changed on at least 200 days, therefore reflects a situation where prices have fluctuated from day to day at least 80% of the time.
12. Active volume does not necessarily lead to a change in closing price. This therefore results in a different subsample than that of firms with high information asymmetry.

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## Appendix 1
## Example of a headline earnings reconciliation

This appendix provides an example of a headline earnings reconciliation, extracted from the annual results of Goldfields for the year ended 31 December 2019. The gain on bargain purchase ("gain on acquisition") appears as an adjustment of $51,8 million in this reconciliation (refer to the 2018 column). The format of the reconciliation and reconciling items are prescribed in a circular issued by the South African Institute of Chartered Accountants (SAICA – South African Institute of Chartered Accountants, 2019), which is regularly updated for changes in IFRS. Companies are not permitted to deviate from the requirements and the reconciliation is audited (Venter *et al.*, 2014). Gains on bargain purchase are specified as a reconciling item (SAICA – South African Institute of Chartered Accountants, 2019), thereby increasing their disclosure prominence.

| | | United States Dollar | | |
|---|---|---|---|---|
| | *Figures in millions unless otherwise stated* | **2019** | 2018 | 2017 |
| **10.** | **EARNINGS PER SHARE** (continued) | | | |
| **10.5** | **Headline earnings per share from continuing operations – cents** | **20** | 7 | 26 |
| | Headline earnings per share is calculated on the basis of adjusted net profit attributable to owners of the parent from continuing operations of US$162.7 million (2018: US$60.6 million and 2017: US$212.3 million) and 827,386,603 (2018: 821,532,707 and 2017: 820,611,806) shares being the weighted average number of ordinary shares in issue during the year. | | | |
| | Net profit/(loss) attributable to owners of the parent from continuing operations is reconciled to headline earnings as follows: | | | |
| | **Long-form headline earnings reconciliation** | | | |
| | Profit/(loss) attributable to owners of the parent from continuing operations | **161.6** | (348.2) | (31.8) |
| | Loss/(profit) on disposal of assets, net | **(0.8)** | 37.0 | (2.6) |
| | Gross | **(1.2)** | 51.6 | (4.0) |
| | Taxation effect | **0.4** | (12.0) | 1.2 |
| | Non-controlling interest effect | **–** | (2.6) | 0.2 |
| | Impairment, reversal of impairment and write-off of investments and assets and other, net | **1.9** | 371.8 | 246.7 |
| | Impairment, net of reversal of impairment of investments and assets | **9.8** | 520.3 | 200.2 |
| | Write-off of exploration and evaluation assets | **30.0** | 37.7 | 51.5 |
| | Profit on disposal of Maverix (2018: profit on dilution of Gold Fields' interest in Maverix) | **(33.8)** | (4.0) | – |
| | Gain on acquisition of Asanko | **–** | (51.8) | – |
| | Release of foreign exchange reserve on disposal of subsidiary | **4.6** | – | – |
| | Loss on disposal of subsidiary | **0.3** | – | – |
| | Taxation effect | **(9.0)** | (130.4) | (4.3) |
| | Non-controlling interest effect | **–** | – | (0.7) |
| | **Headline earnings** | **162.7** | 60.6 | 212.3 |

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## Appendix 2
## Examples of disclosure quality for gains on bargain purchase

This appendix provides some examples of the reasons disclosed for the recognition of gains on bargain purchase. Following Elnahass and Doukakis (2019), gains on bargain purchase for which the reasoning behind recognition is explicitly disclosed are regarded as being of high disclosure quality. As illustrated in Panel A such reasons could include, for example, a distressed seller or changes in market prices. All other gains on bargain purchase are regarded as being of low disclosure quality, where examples illustrated in Panel B show that these disclosures frequently focus on the mechanics of the calculation without details of the circumstances leading to the recognition of the gain.

### Panel A: Reason for recognition of gain on bargain purchase explicitly disclosed (coded as GBP_Disc/GBPold_Disc)

Gain on bargain purchase is the difference between the purchase consideration and the fair value of the investment acquired. The gain on bargain purchase arose as a result of the purchase price being fixed in shares of 211,850,125 at the monthly average share price as determined in September 2008. With the decline in the share price from an average of R5,50 in 2008 to R2,20 at acquisition date, a gain on bargain purchase has arisen. Management is confident that the fair value of the assets remained unchanged since the acquisition date (Wesizwe Platinum, 2010).

The bargain purchase gain arose due to Textainer's particular ability to accommodate the transaction needs of TAP Fundings selling shareholders. Specifically, the transaction allows approximately half of TAP Funding's existing shareholders to continue their investment in TAP Funding, and allows TAP Funding to continue to buy containers that will be managed by Textainer on TAP Funding's behalf, thus enabling TAP Funding to maintain a young fleet of containers that can be readily financed. The transaction also allowed TAP immediate liquidity in cash. As Textainer was already managing TAP Funding's assets, Textainer was able to complete the transaction in an expedited manner without the need for due diligence. (Trencor, 2012).

The excess of the fair value of the net assets acquired over the consideration is recognised immediately in profit or loss as a gain on acquisition. The gain on acquisition is attributable to the transaction being attractively priced, and is consistent with the statement by the boards of Sibanye-Stillwater and Lonmin, that the purchase price reflected the recovery in PGM prices at the time of the increased offer, balanced against the fact that Lonmin, pre-acquisition, was financially constrained and unable to fund the significant investment required to sustain its business and associated employment (Sibanye-Stillwater, 2019).

### Panel B: Reason for recognition of gain on bargain purchase not explicitly disclosed (coded as GBP_NoDisc/GBPold_NoDisc)

Due to successful negotiations and strong market values of the underlying assets, a gain of purchase on business acquisition of R21m was recognised (Mediclinic International, 2011).

A gain on bargain purchase arose on the acquisition of Leaf LFG US Investments, Inc. The acquired business's property, plant and equipment and intangible assets were valued by an independent party as at the date of acquisition. The value of net assets acquired exceeded the consideration for the acquisition, which resulted in a gain on bargain purchase (Montauk, 2016).

The group, through RMB IBD, acquired a subsidiary as a result of a restructuring transaction. This acquisition resulted in a gain on bargain purchase of R42 million (FirstRand, 2018).

The bargain purchase gain arose mainly due to the recognition of the IFRS 3 intangible assets (Mpact, 2019).

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## Appendix 3
## Variable definitions

| | |
|---|---|
| *BV* | Book value per share, excluding all gains on bargain purchase variables |
| *GBP_Disc* | The gain on bargain purchase per share recognised during the current period where the firm discloses a supporting reason for its recognition |
| *GBP_NoDisc* | The gain on bargain purchase per share recognised during the current period where the firm does not disclose a supporting reason for its recognition |
| *GBPmat* | Materiality of gains on bargain purchase, calculated as the sum of all gains on bargain purchase reported in the current and preceding two periods over unadjusted net income |
| *GBPold_Disc* | The total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm disclosed supporting reasons in the period of their first recognition |
| *GBPold_NoDisc* | The total gains on bargain purchase per share recognised in earnings over the preceding two periods where the firm did not disclose supporting reasons in the period of their first recognition |
| *Impair* | An indicator variable set to one if a firm has reported impairment of goodwill during the current or two preceding years and zero otherwise |
| *LEV* | Gearing, calculated as unadjusted book value over total assets |
| *MV* | Market value per share, six months after the reporting date, calculated using a firm-specific total return index |
| *Neg* | An indicator variable set to one if *NI* is negative and zero otherwise |
| *NI* | Earnings attributable to ordinary shareholders per share, excluding *GBP_Disc* and *GBP_NoDisc* |
| *ROA* | Return on assets |
| *Size* | The natural log of total assets |

**Source(s):** Author's own work

**Table A1.** This appendix summarises the definitions for the various variables used in this study

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