Customer relationships in the consolidated financial statements: recognition and value relevance

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ABSTRACT
Customer relationships are important strategic resources. With a sample of A-share listed firms from 2007 to 2020 in China, this paper examines the recognition and value relevance of customer-related intangible assets. Current accounting standards require an acquirer to recognise identifiable intangible assets acquired in the business combination separately from goodwill. However, stakeholders question the usefulness of the information about customer relationships that are difficult to value reliably. The IASB and IFRIC have discussed a lot about whether to continue to separate customer-related intangible assets from goodwill. We find that firms with more R&D investments are more likely to recognise customer-related intangible assets. We also find that the book value of customer-related intangibles is positively associated with share price, which means recognised customer-related intangibles provide useful information to investors. We report empirical evidence in support of both international and Chinese accounting standards for separate recognition of identifiable intangible assets.

KEYWORDS
Customer relationships; value relevance; business combination; intangible assets

1. Introduction
International Financial Reporting Standards (IFRS) 3 Business Combinations (as revised in 2008) requires acquirers to recognise identifiable intangible assets of the acquiree separately from goodwill (IASB, 2008). An intangible asset is identifiable if it meets either the contractual-legal criterion or the separable criterion in International Accounting Standard (IAS) 38 Intangible Assets. IFRS 3 and the amendments to IAS 38 broadened the range of intangible assets recognised separately in business combinations, rather than being included in goodwill. Chinese accounting standards (CAS) which converge with IFRS have similar requirements.

However, stakeholders, such as investors, auditors and standard setters hold different opinions on whether recognising intangible assets separately from goodwill provides useful information. The IFRIC has frequently discussed issues about the recognition of non-contractual customer relationships and how to identify and measure separately recognised customer-related intangible assets and goodwill. In 2016, the International Accounting Standards Board (IASB) launched the Goodwill and impairment project, one of
the issues is the identification and measurement of intangible assets acquired in a business combination. The discussion paper *Business Combinations – Disclosures, Goodwill and Impairment* published in March 2020 states that ‘Stakeholders’ views differ on the benefits of recognising identifiable intangible assets separately, particularly in relation to customer relationships and brands’ (IASB, 2016; 2020).

Investors question whether recognising intangible assets acquired in a business combination separately from goodwill provides useful information. On the one hand, recognising intangible assets acquired in a business combination separately from goodwill may explain what companies have bought and help investors to assess the company’s prospects for future cash flows. Others question the usefulness of this information due to the level of measurement uncertainty in estimating the carrying amounts of those intangible assets for which there is no active market, such as customer relationships and brands. From the perspective of other stakeholders – mainly preparers, auditors, and standard setters, separate recognition results in intangible assets with finite useful lives being amortised rather than being included in goodwill, which is not amortised. The information provides a better basis for understanding what a company has paid for. However, valuing intangible assets is complex, subjective, and costly, and distinguishing some intangible assets, such as brands and customer lists, from the rest of a business is difficult. Therefore, some stakeholders questioned whether the separate recognition of some intangible assets justifies the cost (IASB, 2020).

Customer relationships represent the future economic benefits in the form of future business with customers. Whether customer relationships should be recognised as identifiable intangible assets separately from goodwill is still a controversial issue. Although recognition and measurement of customer-related intangible assets concern standard setters and other stakeholders, there is little empirical research on factors associated with recognition and value relevance of customer-related intangible assets. With the development of China’s capital markets, mergers and acquisitions (M&A) have become an important way for listed companies to gain resources and competitive advantages. Customer relationships are important strategic resources for firms, more and more Chinese listed firms acquire customer-related assets through business combinations. Under current accounting standards, customer-related intangible assets owned by the acquiree can be recognised as identifiable intangible assets in the consolidated statements if meet the criteria for recognition. And the recognition and measurement of such assets rely on customer loyalty/habits even without legal/contract relationships.

Based on a sample of Chinese listed firms from 2007 to 2020, we investigate the incentives for firms to acquire and recognise customer-related intangible assets and the incremental value relevance of such assets. We find that recognition of customer-related intangible assets is not associated with managerial incentives and debt level, firms that with more R&D investments are more likely to have customer-related intangible assets, which means that firms that attach importance to R&D investment tend to improve their firm value by acquiring more high-quality customer resources. Further, our study finds that the book value of customer-related intangible assets is positively associated with the stock price, and investors respond positively to customer-related intangible assets recognised separately from goodwill.
Our study makes several contributions. First, we provide evidence supporting the hypothesis that identifiable intangible assets recognised separately from goodwill provide useful information. Based on the Chinese setting, this paper responds to this international concern and provides empirical evidence for standard setters and other stakeholders. Existing studies mainly focus on the value relevance of goodwill and different types of intangible assets such as patents, brands, and the capitalisation of R&D expenditure (Barth & Clinch, 1996; Dahmash et al., 2009; Wyatt, 2008; Greenhalgh & Rogers, 2006; Hall et al., 2005; Cheng et al., 2010; Shao & Fang, 2006; Yang, 2019). Little attention has been paid to the role of identifiable intangible assets acquired in a business combination separately from goodwill in emerging economies, especially customer-related intangible assets. To a certain extent, this paper provides empirical evidence for the implementation effects of relevant accounting standards, and our findings have policy implications for standard setters.

In addition, the Annual Accounting Supervision Report of Listed firms issued by the China Securities Regulatory Commission (CSRC) has repeatedly mentioned the identification and measurement of intangible assets during business combinations not under common control, and China’s stock exchanges have also paid attention to this issue in the comment letters of listed firms. This paper shows that investors react positively to the accounting information of customer-related intangible assets. Compared with the debt contracting incentives and overconfidence of the management, firms are more likely to acquire and recognise customer-related intangible assets out of the motivation of reducing transaction costs. This paper further expands research on proprietary assets and corporate acquisitions. In practice, we suggest that firms should pay more attention to the identification and measurement of customer-related intangible assets and related information disclosure, and attach importance to the role of long-term customer resources in reducing transaction friction and transaction cost.

The paper proceeds as follows. Section 2 discusses the extant literature on motivation for allocation and recognition of assets acquired by business combination, and the value relevance of intangible assets. Section 3 describes the institutional background. Section 4 develops the hypotheses. Section 5 describes the research design. Section 6 presents the sample analyses and reports the results of multivariate analyses and additional tests. Section 7 concludes by discussing the study’s findings and limitations.

2. Literature review

2.1. Purchase price allocation in M&A

Under the framework of empirical accounting theory, the motivations of managers to choose accounting policies and how to respond to the newly issued accounting standards have attracted much attention (Scott, 2003). When accounting for M&A, the acquiring firm must assess the fair values of the acquired identifiable net assets, which include tangible assets and definite-lived intangible assets. Any excess of the purchase price over these fair values is allocated to goodwill. Since most acquired assets and liabilities do not have

1For example, in 2013, the report mentioned that ‘As for the acquirer, the intangible assets owned by the acquiree but not recognized in its financial statements should be fully identified in the initial recognition of the assets in the business combination. Those that meet the identifiable conditions in the accounting standards should be recognized as intangible assets.’
quoted market prices, fair value accounting requires significant judgement, allowing managers to exercise discretion in choosing from a reasonable range of possible values (Lynch et al., 2019; Zhang & Zhang, 2017). In addition to the direct impact of accounting standards, existing studies also focus on managerial opportunism (Shalev, 2009; Shalev et al., 2013), information asymmetry (Godfrey & Koh, 2001), and debt contracting motivation (Kallapur & Kwan, 2004) to discuss the allocation and recognition of assets (mainly goodwill and its impairment) in M&A. Prior research predicts and finds that managers tend to allocate more of the purchase price to goodwill, presumably because firms must depreciate tangible assets and amortize definite-lived intangible assets, but do not amortize goodwill, this strategy allows them to report higher net income in future periods (He et al., 2021; Shalev, 2009; Shalev et al., 2013). Chief executive officers (CEOs) who receive a larger proportion of their compensation from earning-based bonuses are more likely to over-allocate the purchase price to goodwill (Shalev et al., 2013). Many studies show goodwill recognition, impairment, and disclosure are associated with economic and firm factors, and there is some evidence about the impact of managerial incentives and a lack of timeliness in impairment recognition (Li & Sloan, 2017). There is scope for more cross-country studies showing how institutional factors affect the application of IFRS 3 and IAS 36 (d’Arcy & Tarca, 2018).

Existing researches pay little attention to the recognition of identifiable intangible assets other than goodwill, especially the recognition of customer-related intangibles. In terms of the recognition and measurement of intangible assets, Choi et al. (2000) believed that the management should be given more discretion in dealing with intangible assets, which would help reduce measurement errors of intangible assets in financial statements and improve the reliability of accounting information. Managers can use their discretion to provide more accurately transfer private information to capital markets, thus reducing information asymmetry between managers and investors (Godfrey & Koh, 2001). In addition, Kallapur and Kwan (2004) find that the difference between the treatment of goodwill and brands under SSAP No. 22 enabled U.K. firms to increase owners’ equity by recognising brands separately from goodwill, and high-leverage firms are more likely to overestimate brand value to reduce goodwill. Managers’ discretionary valuations of intangible assets recognised in financial statements might not be reliable.

Unlike other intangible assets such as patents and software, customer relationships are proven through market transactions and represent the future economic benefits in the form of future business with customers. The IFRIC and IASB have discussed a lot about practical issues and standards revision regarding customer relationships. Chinese regulators are also very concerned about the recognition of identifiable intangibles of listed firms in business combinations not under common control. Using Chinese data to study the recognition of customer-related intangible assets not only broaden existing literature but also provide evidence for the implementation of accounting standards and the recognition of identifiable intangible assets under different institutional backgrounds.

2.2. Value relevance of intangible assets

Value relevance studies aim to evaluate the extent to which accounting data reflect information ‘related’ to firm value (represented by stock price). Holthausen and Watts
(2001) classify the value-relevance studies into three categories: relative association studies, incremental association studies and marginal information content studies. This paper is most relative to the incremental association studies which investigate whether the accounting number of interest helps explain value or returns given other specified variables.

A large body of academic literature claims a decline in earnings’ value relevance, and largely attributes the decline to the shift to the new economy. Lev and Zarowin (1999) find a weaker association between price and earnings for firms with more intangible assets. Barth et al. (2022) suggest an increasing number of accounting amounts, most notably those related to intangible assets, growth opportunities, and alternative performance measures, reflect information relevant to valuing firms. This trend is economy-wide, and not limited to firms emblematic of the new economy.

The value relevance of intangible assets is an important branch of value relevance research in accounting. In the new economy, intangible assets are important to firm value. Many studies use different methods to test the value relevance of intangible assets such as patents, brand assets, capitalisation of R&D expenditure, and non-financial information (Wyatt, 2008). Shao and Fang (2006) divide intangible assets into technical intangible assets (patent, proprietary technology) and other intangible assets such as land ownership, and find that the value relevance of technical intangible assets is mainly reflected in high-tech industries, but not obvious in non-high-tech industries. Empirical studies on R&D expenditures show that capitalised R&D expenditures are closely related to operating performance and contain information related to stock prices (Han & Manry, 2004; Lev & Sougiannis, 1996).

Patents are important outputs of firm innovative activities. Researches on patents mainly measure the value relevance of patent information from the number of patents and patent citations. It is generally believed that patent citations are more value relevant than the number of patents (Greenhalgh & Rogers, 2006; Hall et al., 2005). Brand and trademark assets are outputs of a firm’s investment in advertising, product development and trademark-related inputs. M.E. Barth et al. (1998) first conduct research based on the brand value data of media companies Kallapur and Kwan (2004) study the value relevance and reliability of brand assets recognised by U.K. firms. Before the implementation of British Financial Reporting Standards No. 10 in 1998, brands were not required to be amortised, and they find that firms with high financial leverage are more motivated to overestimate brand value to reduce the provision of goodwill.

Customer relationship is one of the most important soft assets for a firm. Different from intangible assets such as patents, land ownership and trademark, customer-related assets are identifiable intangible assets recognised in the business combination not under common control. Marketing research identifies customer satisfaction/loyalty as a key driver of firm value, reflecting information about customer retention, declining price elasticity, brand and reputation effects (Anderson et al., 1994). Inspired by marketing research, some studies have examined whether customer relationships related to a company’s product market are value relevant. Before 2008, international accounting standard setters did not provide standards for assets related to customer relationships, and such assets were not recognised in financial statements. Therefore, the study could not test the value relevance of customer-related assets and mainly focused on the estimated value of such intangible assets. For example, customer service quality based
on news information (Nayyar, 1995), customer satisfaction based on survey research (Ittner & Larcker, 1997), or use the financial and non-financial information related to the firm’s customer resources to establish valuation models (Gupta et al., 2004). In a sample of 303 distinct firms in the United States from 2010 to 2015, Bauman and Shaw (2018) explored the correlation between customer-related intangible assets and goodwill of U.S. firms but did not examine the recognition motivation of customer-related assets.

To sum up, existing studies have proved that high-quality customer resources are the key value drivers of firms from different perspectives. However, from the perspective of customer relationship capitalisation, the value relevance and recognition behaviour of customer-related intangible assets in financial statements are not tested. China is one of the largest emerging markets in the world. The research on the value relevance of customer-related intangible assets based on the data of Chinese listed firms can provide certain empirical evidence for the formulation and implementation of accounting standards in China and other countries.

3. Institutional background

3.1. Accounting standards and regulatory requirements

3.1.1. International financial reporting standards

Under IFRS 3 Business Combinations and IAS 38 Intangible Assets, an acquirer shall recognise the identifiable intangible assets of the acquiree separately from goodwill. An intangible asset is identifiable if it (a) is capable of being separated or divided from the acquiree and sold, transferred, licenced, rented or exchanged, either individually or together with a related contract, identifiable asset or liability (the separability criterion); or (b) arises from contractual or other legal rights (the contractual-legal criterion) (IFRS 3; IAS 38). IASB (2016) recommends that ‘A customer relationship: i. represents the future economic benefits in the form of future business with a customer beyond the amount secured by any current contractual arrangement. ii. existed between an entity and its customer if the entity had information about the customer and had regular contact with the customer’. The recognition and measurement of customer-related intangible assets are subject to the discretion of management, and firms can’t acquire customer relationship assets through separate purchases, but as a part of business combinations, and separate them from goodwill.

The IFRIC has frequently discussed issues about the recognition of non-contractual customer relationships and how to identify and measure separately recognised customer-related intangible assets and goodwill. In 2016, the IASB launched the ‘Goodwill and impairment’ project, one of the issues is the identification and measurement of intangible assets acquired in a business combination.

3.1.2. Chinese accounting standard

Chinese accounting standards on business combinations and intangible assets are similar to international accounting standards. Under Accounting Standards for Business Enterprises No. 6 – Intangible assets and No. 20 – Business Combinations, for a business combination not under common control, the identifiable net assets of the subsidiary shall be adjusted to their fair values at the date of acquisition when preparing consolidated
financial statements. As for any intangible asset acquired in a combination, if its fair value can be measured reliably, it shall be separately recognised as an intangible asset and shall be measured in light of its fair value.

### 3.1.3. Regulatory requirements

In the comment letters disclosed by the Chinese stock exchanges, the issue of customer-related intangibles is also mentioned frequently. Table 1 lists the comment letters directly related to customer relationships.

The identification and measurement of intangible assets in business combinations not under common control are mentioned many times in the Annual Report on Accounting Supervision of Listed Firms issued by the China Securities Regulatory Commission (CSRC). Table 2 lists the content associated with identifiable intangibles.

### 3.2. Customer-related intangibles recognition of listed firms in China

With the development of China’s capital markets, M&A has become an important way for listed firms to obtain strategic resources and competitive advantages. Customer relationships are important resources for business operations. In recent years, more and more listed firms in China have acquired customer-related intangibles as part of a business combination. Figure 1 illustrates by the end of 2020, the book value of customer-related intangibles of listed firms reached 31.66 billion yuan. According to statistics, 131 listed firms in China have recognised customer-related intangibles from 2007 to 2020. Among our sample firms, customer-related intangibles are important parts of intangible assets, accounting for 17.63% on average, the proportion of some firms even exceeds 50%.

For instance, in 2017 ThunderSoft (Code: 300,496) Group’s subsidiary ThunderSoft Automotive Technology Luxembourg SARL purchased 100% equity of Rightware Oy, an American company, and the acquiring firm’s intangible assets increased by 217 million yuan through acquisition, among which amount of customer-related intangible assets was 127 million yuan, accounting for 58.53%. However, ThunderSoft did not disclose the

### Table 1. The contents related to customer relationships in the comment letters.

| Year | Company                      | Regulator             | Relevant content                                                                                                                                                           |
|------|------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2019 | Truking Technology           | Shenzhen Stock Exchange | The audit report shows the firm’s intangible assets include customer relationships, please illustrate the recognising time, recognising basis, initial entry basis, amortisation period of customer relationships, etc. Please state whether the accounting treatment conforms to the relevant accounting standards by independent financial consultants and accountants. |
| 2020 | Cangzhou Mingzhu            | Shenzhen Stock Exchange | At the end of the reporting period, the firm added 10 million yuan to the balance of customer-related intangible assets. Please explain the specific content of customer relationships and whether it meets the recognition conditions of intangible assets under accounting standards for business enterprises. The annual audit accountants should check and express clear opinions. Please explain in detail the reasons for the large difference in the valuation results of the two valuation methods, the main contents of the substantial value-added valuation of the income method, and the relevant valuation and basis of the so-called sales team, customer relationships, technical reserves and other intangible. Resources. |
| 2021 | Raycloud Technology          | Shanghai Stock Exchange |                                                                                                                                                                             |
Table 2. The contents related to identifiable intangible assets in the annual accounting supervision report of listed firms.

| Year | Relevant content |
|------|------------------|
| 2013 | As for the acquirer, the intangible assets owned by the acquiree but not recognised in its financial statements should be fully identified in the initial recognition of the assets in the business combination. Those that meet the identifiable conditions in the accounting standards should be recognised as intangible assets. |
| 2016 | During business combinations not under common control, the acquirer should recognise all identifiable assets and liabilities at fair value, including the assets and liabilities that have not been identified in the financial statements of the acquiree, such as internally generated non-patented technology, brand assets, and so on. |
| 2017 | According to the analysis of the annual report, some listed firms recognised a large amount of goodwill in business combinations not under common control, and its goodwill accounted for more than 90% of the M&A consideration. One of the reasons for the formation of large goodwill is that the listed firm fails to fully identify and recognise the intangible assets owned by the acquiree, which leads to the amount that should be recognised as intangible assets being directly included in the goodwill. |
| 2018 | Listed companies have the problem of insufficient recognition of identifiable net assets leading to inflated goodwill. According to the analysis of the annual report, the phenomenon of inadequate recognition of identifiable net assets and underestimation of the fair value of the acquired assets generally exist in M&A, particularly in the emerging industry, such as biological medicine, media, computer, etc. Most of the targets in these sectors are asset-light companies, whose business value is likely to come from unrecognised intangible assets (such as customer relationships, contract rights, etc.), inadequate recognition of such assets leads to overestimated goodwill. |
| 2019 | During business combinations not under common control, some listed firms have not recognised the intangible assets of the acquiree by fair value, such as a franchise, but use the difference between merger cost and fair value of other identifiable net assets, leading to errors in intangible assets and goodwill amount. |

![Figure 1](CHINA_JOURNAL_OF_ACCOUNTING_STUDIES_397)  
**Figure 1.** Annual trend of the book value of customer-related intangible assets of A-share listed firms from 2007 to 2020.

Recognition and valuation basis of customer-related intangibles in detail. According to the valuation report, additional customer relationships, patents, software, and other intangible assets are all ‘off-balance-sheet assets’ from the acquiree. Patents and software correspond to specific products or licences. However, customer-related intangible assets are described as ‘we have signed product orders or framework agreements with 15 major automobile manufacturers and tier 1 product suppliers such as Audi, offering stable customer resources. Following the confidentiality requirements, customer information, product orders
Figure 2. Changes in the composition of intangible assets of ThunderSoft from 2015 to 2020.

or framework agreements will not be disclosed here’. Figure 2 shows changes in the composition of intangible assets of ThunderSoft from 2015 to 2020.

4. Hypothesis development

4.1. Recognition of customer-related intangibles

The literature suggests that allocation and recognition of assets in M&A are subject to managerial opportunism (Shalev, 2009; Shalev et al., 2013), information asymmetry (Godfrey & Koh, 2001), and debt contracting incentives (Kallapur & Kwan, 2004). Based on the existing literature, this paper mainly discusses the recognition behaviour of customer relationships from three perspectives: managerial overconfidence, innovation investment and debt contracting.

4.1.1. Managerial overconfidence and recognition of customer-related intangibles

Empirical studies find that overconfident managers tend to overestimate their abilities and underestimate risks, and overestimate the future income of investment decisions, which eventually leads to excessive payment to target enterprises, resulting in high premiums (Malmendier & Tate, 2008; Mathew & Hambrick, 1997). Customer-related assets are recognised during business combinations not under common control, the acquirer recognises them as intangible assets separately from goodwill in the consolidated financial statements. Overconfident managers may believe that their excellent management skills can help realise the management, operation, and financial coordination between the two parties, and thus overestimate the synergistic effect and future earnings of M&A (Jiang et al., 2009), which easily leads to the increase of m&a premium level. The M&A premium is not only reflected in goodwill but also may be reflected in managers’
overvaluation of intangible assets recognised separately from goodwill. Building on the above discussions, we formulate the following hypotheses:

H1: There is a positive correlation between managerial overconfidence and the recognition of customer-related intangible assets.

4.1.2. **Innovation investment and recognition of customer-related intangibles**

The transaction cost theory suggests that for firms with a high degree of asset specificity (that is, transactions are based on the investment of specific assets), a change in the use of proprietary assets will greatly increase transaction costs (Williamson, 1985). In this case, both parties are more suitable for relational governance. Lev and Sougiannis (1996) find that the increase of specific assets such as R&D capital can improve future benefits and help to enhance competitive advantage. However, innovation projects are highly uncertain, risky and long-term (Holmstrom, 1989; Scherer, 1965), firms are faced with serious information asymmetry while making decisions on innovation investment, and the spillover effect of innovative knowledge and technology may lead to more loss of interests. Relative to general assets, proprietary assets are limited to specific purposes. Through the business combination, firms obtain stable and long-term customer resources which are particularly important for firms with high R&D investment. Due to information asymmetry between stakeholders, firms may acquire customer relationships for precautionary reasons and recognise them in consolidated financial statements to cope with future uncertainties and maintain competitive advantages. With the increase in asset specificity, listed firms are more likely to acquire customer resources in M&A.

Based on the existing literature, this paper focuses on the relationship between innovative asset specificity and asset recognition in M&A. Following Allen and Phillips (2000) and Li and Wang (2006), this paper adopts R&D expenditure/operating income (R&D intensity) to measure asset specificity, which to some extent reflects the investment intensity of a firm’s specific innovation assets. The products of high R&D firms are highly innovative, along with greater uncertainty. Innovative firms need to expand sales channels and allocate high-quality customer resources. Therefore, through business combinations not under common control, the acquirer is more likely to target the high-quality customer relationship resources of the acquiree and recognise customer relationships acquired in M&A as identifiable intangible assets. Given these arguments, we state our hypothesis as follows:

H2: The recognition of customer-related intangible assets is positively associated with R&D intensity.

4.1.3. **Debt contracting and recognition of customer-related intangibles**

In addition to the possible influence of managerial incentive and asset specificity, for firms with high financial leverage, there may be debt contracting incentives to recognise customer-related intangibles. Kallapur and Kwan (2004) study the value relevance and reliability of brand assets recognised by U.K. firms and find that firms with high financial leverage are more motivated to overestimate brand value to reduce the provision of goodwill. On the one hand, customer-related intangibles are identifiable compared to goodwill or other unidentifiable intangibles. On the other hand, there is usually no active market to trade or
mortgage such assets, and firms cannot effectively reduce their debt level through recognition of customer-related intangibles. We state our hypothesis as follows:

**H3A:** There is a positive correlation between the recognition of customer-related intangible assets and firm debt level.

**H3B:** There is no correlation between the recognition of customer-related intangible assets and firm debt level.

5. **Research design**

5.1. **Recognition behaviour of customer-related intangibles**

We use Logit and Tobit models to examine hypotheses H1-H3. We carry out the Logit model if the dependent variable is an indicator variable \( \text{CustomerTreat} \). When the dependent variable is a continuous variable \( \text{CRPA} \), which is censored and bounded between 0 and 1, we adopt the Tobit model in the test. We lag all explanatory and control variables by 1 year to reduce the risk of reverse causality. We test our hypotheses with the following regressions:

\[
\text{CRPA}_t = \beta_0 + \beta_1 \text{RD}_{t-1} + \beta_2 \text{LEV}_{t-1} + \beta_3 \text{OverConf}_{t-1} + \beta_4 \text{SOE}_{t-1} + \beta_5 \text{ROA}_{t-1} + \beta_6 \text{SIZE}_{t-1} + \beta_7 \text{Growth} + \text{IndustryFE} + \text{YearFE} + \varepsilon_t
\]

(1)

\[
\text{CustomerTreat}_t = \beta_0 + \beta_1 \text{RD}_{t-1} + \beta_2 \text{LEV}_{t-1} + \beta_3 \text{OverConf}_{t-1} + \beta_4 \text{SOE}_{t-1} + \beta_5 \text{ROA}_{t-1} + \beta_6 \text{SIZE}_{t-1} + \beta_7 \text{Growth} + \text{IndustryFE} + \text{YearFE} + \varepsilon_t
\]

(2)

Where \( \text{CRPA} \) is the book value of customer-related intangible assets divided by total assets. \( \text{CustomerTreat} \) is the indicator for whether the firm recognises customer-related intangibles. Following Allen and Phillips (2000) and Li and Wang (2006), \( \text{RD} \) is a proxy for asset specificity, measured as R&D expenditure/operating income (R&D intensity), which to some extent reflects the investment intensity of a firm’s specialised innovation assets. Data on R&D investment is extracted from the Chinese Research Data Services Platform (CNRDS) database. \( \text{LEV} \) is a proxy for debt level measured as total liabilities divided by total assets. \( \text{OverConf} \) indicates the level of managerial overconfidence, Following Jiang et al. (2009), measured by the relative proportion of executive compensation. Following previous studies, we also include \( \text{SOE} \) (indicator for state-owned enterprises), \( \text{SIZE} \) (natural logarithm of a firm’s total assets), \( \text{ROA} \) (net profit divided by total assets), \( \text{Growth} \) (the percentage change in sales between years). Industry and year fixed effects are included. Standard errors are computed after clustering by firm. Table 3 describes the definitions of main variables used in these regression models.

5.2. **The value relevance of customer-related intangibles**

Value relevance of recognised customer-related intangibles is tested using an accounting-based valuation model developed originally by Ohlson (1995), in which a firm’s market value is a function of the book value of equity and earnings. Following Collins et al. (1997)
Table 3. Description of the variables.

| Variable Name              | Description                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| **PRICE**                  | The closing price of firm i on April 30th after the disclosure of annual reports.                                                            |
| BVE                       | The book value of equity per share of firm i at the end of year t.                                                                         |
| BVEwithoutCustomer         | The book value of equity minus the amount of customer-related intangibles per share of firm i at the end of year t.                           |
| NI                        | The net profit per share of firm i in year t.                                                                                               |
| CR                        | customer-related intangibles per share recognised in the balance sheet of firm i at the end of year t.                                         |
| CustomerTreat             | Dummy variable, equal to 1 for firms have recognised customer-related intangibles, 0 otherwise.                                              |
| CRPA                      | Book value of customer-related intangible assets divided by total assets.                                                                     |
| RD                        | The R&D investment intensity of firm i, calculated as R&D expenditure/operating income.                                                     |
| SOE                       | Dummy variable, equal to 1 for state-owned enterprises, 0 otherwise.                                                                        |
| LEV                       | The leverage ratio, equal to total liabilities divided by total assets.                                                                       |
| ROA                       | Return on assets, equal to net profit divided by total assets.                                                                             |
| SIZE                      | Firm size, equal to the natural logarithm of total assets.                                                                                   |
| Growth                    | Sales growth, equal to the percentage change in sales.                                                                                       |
| OverConf                  | Following Jiang et al. (2009), managerial overconfidence is measured as ratio of total compensation of top 3 highest-paid executives to the annual total compensation of all executives. |

and Francis and Schipper (1999), we use the price model to evaluate the value relevance, the original model is as follows:

\[
PRICE_{it} = \beta_0 + \beta_1 BVE_{it} + \beta_2 NI_{it} + \epsilon_{it}
\]  

(3)

To examine the impact of our variable of interest (customer-related intangibles), consistent with Kallapur and Kwan (2004), the book value of equity is separated into distinct components to examine the correlation between customer-related intangibles and the firm’s market value.

\[
PRICE_{it} = \beta_0 + \beta_1 BVE without Customer_{it} + \beta_2 NI_{it} + \beta_3 CR_{it} + IndustryFE + YearFE + \epsilon_{it}
\]  

(4)

\[PRICE\] is the closing price of the stock on 30th April after fiscal year-end to ensure the accounting information is publicly available. As 30th April is the deadline for Chinese listed firms to disclose annual reports, the information in the annual reports can be fully understood by investors at this time. \[BVEwithoutCustomer\] is the book value of equity minus the amount of customer-related intangibles per share. \[NI\] is the net profit per share. \[CR\] is the customer-related intangibles per share recognised in the consolidated balance sheet. We deflate non-indicator amounts by shares outstanding to facilitate comparison with related prior research (Collins et al., 1997; Lev & Zarowin, 1999). Industry and year fixed effects are included. Standard errors are computed after clustering by firm. Table 3 describes the definitions of all the variables used in these regression models.

6. Sample analyses and empirical results

6.1. Sample selection and descriptive Statistics

Our sample starts from 2007 because the Ministry of Finance issued a new set of Accounting Standards for Business Enterprises in 2006. Models (1) and (2) mainly test the relationship between different factors and customer-related intangible recognition of
listed firms. Therefore, our sample is drawn from all A-share listed firms that have implemented business combinations not under common control from 2007 to 2020 in China. We obtain 23,773 observations for our tests after excluding (1) firms in the finance sector, (2) firms under special treatment, (3) firms never implement business combinations not under common control, (4) firms with missing variables, and (5) non-listed observations. Table 4 details the sample selection process. For the value relevance model (3) and (4), following the study of Kallapur and Kwan (2004), our sample consists of all A-share listed firms that have recognised customer-related intangibles from 2007 to 2020, contains 133 listed firms, 475 firm-year observations. Table 5 describes the sample distribution by industry. The computer, communication, and other electronic equipment industry accounts for 11.37% of the total sample, followed by the automobile manufacturing industry, accounting for 10.53%. To avoid the influence of outliers, we winsorise each continuous firm-level variable at the 1% and 99% levels. We collect data from the China Stock Market and Accounting Research (CSMAR) and the CNRDS database.

Table 6 reports the descriptive statistics for the main variables. On average, the mean value of customer-related intangibles per share is 0.01, which accounts for 0.21% of net assets after the deduction of the customer-related intangibles. In the sample of firms that have implemented business combinations not under common control, 1.91% have recognised customer-related intangibles. The mean of explanatory variable RD shares an average of 0.04, the median was 0.03. A 34.89% of the samples are state-owned enterprises, and the average asset-liability ratio was 0.43. Table 7 presents the Pearson correlation matrix for all of the variables. PRICE is positively correlated with BVE, NI, and CR, reflecting the important role of financial information in stock pricing. In line with our predictions, CustomerTreat, CRPA is positively correlated with RD used in Models (1) and (2).

Table 4. Sample Selection.

| Industry                                                   | Firm-year observations |
|------------------------------------------------------------|------------------------|
| A-share population (2007–2020)                            | 38,087                 |
| Excluded: Firms in the finance sector                      | (817)                  |
| Firms under special treatment                              | (3,014)                |
| Firms never implement business combinations not under common control | (7,009)                |
| Firms with missing variables                               | (3,474)                |
| Final pooled sample                                        | 23,773                 |

Table 5. Sample Distribution by CSMAR Industry Classification (Top 10).

| Industry                                          | n         | Freq. (%) |
|---------------------------------------------------|-----------|-----------|
| Computers, communications and other electronic equipment | 54        | 11.368    |
| Automobile manufacturing                          | 50        | 10.526    |
| Electrical machinery and equipment                | 29        | 6.105     |
| Pharmaceutical manufacturing                      | 34        | 7.158     |
| Special equipment manufacturing                   | 28        | 5.895     |
| Software and information technology services       | 23        | 4.842     |
| Chemical raw materials and chemical products       | 22        | 4.632     |
| Manufacturing of railway, ship, aerospace and other transport equipment | 21        | 4.421     |
| Retail                                            | 18        | 3.789     |
| Rubber and plastic products                       | 18        | 3.789     |
| Others                                            | 178       | 37.474    |
| Total                                             | 475       | 100       |
6.2. Empirical results

Table 6 presents the results of model (1) and model (2). Columns (1) and (2) present the regression results using the Logit and Tobit models, respectively. The coefficient on RD is positively significant, indicating that firms with higher R&D intensity are more likely to recognise customer-related intangibles. The coefficients on Lev and OverConf are not significant, there is no significant relationship between managerial overconfidence, debt level and customer-related intangible recognition. Investment in specific assets brings high sunk costs and a long payback period. Long-term and stable customer resources help to reduce transaction friction. Since innovation investment has the dual characteristics of high risk and high return, when faced with greater uncertainty, innovative firms may tend to acquire high-quality customer relationship resources of the target of acquisition to expand sales channels and improve competitive advantages. The coefficients of control variables show that the higher the growth and size of the company, the higher the proportion of customer-related intangibles.

Table 7 presents the results of value relevance models (3) and (4). After controlling industry and year fixed effects, the coefficient on CR is significantly positive at the 5% level, indicating that customer-related intangibles are positively correlated with firm value. Identifiable intangible assets recognised separately from goodwill in M&A can help users of accounting statements understand the specific assets acquired in M&A more accurately and provide useful information for investors. The stock price is significantly positively correlated with net asset and net profit per share in the current period, indicating that net asset and net profit are value relevant, which is consistent with previous studies.

The empirical results support the recognition of customer-related intangible assets separately from goodwill under current accounting standards. Although investors are concerned about the uncertainty of the fair value and there are additional costs of disclosure, recognising identifiable intangible assets within goodwill will result in information loss of these assets. As intangible assets become increasingly important in the modern economy, it is necessary to pay more attention to intangible asset information in financial reports. Reducing the proportion of identifiable intangible assets recognised...
Table 7. Pearson Correlations.

Panel A

| Variables          | [1] | [2]     | [3]     | [4]     | [5]     |
|--------------------|-----|---------|---------|---------|---------|
| [1] PRICE          | 1   |         |         |         |         |
| [2] BVE            | 0.492*** | 1       |         |         |         |
| [3] BVE without Customer | 0.493*** | 0.994*** | 1       |         |         |
| [4] NI             | 0.514*** | 0.642*** | 0.647*** | 1       |         |
| [5] CR             | 0.162*** | 0.239*** | 0.217*** | 0.109** | 1       |

Panel B

| Variables          | [1] | [2]     | [3]     | [4]     | [5]     | [6]     | [7]     | [8]     | [9]     |
|--------------------|-----|---------|---------|---------|---------|---------|---------|---------|---------|
| [1] CustomerTreat  | 1   |         |         |         |         |         |         |         |         |
| [2] CRPA           | 0.936*** | 1       |         |         |         |         |         |         |         |
| [3] RD             | 0.017*** | 0.020*** | 1       |         |         |         |         |         |         |
| [4] SOE            | 0.001 | −0.011* | −0.275*** | 1       |         |         |         |         |         |
| [5] LEV            | 0.049*** | 0.042*** | −0.367*** | 0.291*** | 1       |         |         |         |         |
| [6] ROA            | 0.001 | 0.001   | 0.035*** | −0.087*** | −0.351*** | 1       |         |         |         |
| [7] SIZE           | 0.142*** | 0.124*** | −0.213*** | 0.329*** | 0.465*** | 0.011* | 1       |         |         |
| [8] Growth         | −0.016** | −0.010 | −0.019*** | −0.196*** | −0.093*** | −0.057*** | −0.245*** | 1      |         |
| [9] OverConf       | 0.020*** | 0.024*** | −0.031*** | −0.052*** | 0.038*** | 0.204*** | 0.033*** | 0.021*** | 1       |

*, **, *** Denote significance at the 10%, 5%, and 1% levels, respectively.
6.3. Additional tests

To alleviate the potential endogeneity problems of the model (1), we adopt the two-stage least square method (2SLS). We select the provincial-level Relief Amplitude (Rdls) calculated by the team of the Institute of Geographic Sciences and Natural Resources Research and unemployment rate (Unemploy) as instrumental variables. Relief amplitude is an important factor affecting population distribution and has a significant impact on local economic development (Feng et al., 2007, 2011), so firms’ innovation investment will be greatly affected by relief amplitude. And the higher the regional unemployment rate, the weaker the innovation ability, and thus the lower the willingness of firms to invest in innovation (Meng et al., 2019). Since the recognition of customer-related intangibles is unlikely to affect the relief amplitude and unemployment rate, the selected instrumental variables are exogenous.

Table 10 presents the regression results of 2SLS regression. In the first stage, we separately regress RD on all of the variables used in Table 8 along with the instruments Rdls and Unemploy. To check whether the instruments are weak, we compute the F-statistics of the reduced form equations (i.e. the additional explanatory power of the instruments in the first-stage regressions). Following standard convention, since the computed F-statistics exceed 10,
Table 9. Value relevance of customer-related intangible assets.

|                | (1)  | (2)  |
|----------------|------|------|
|                | PRICE | PRICE |
| BVE            | 1.410*** | 1.296*** |
|                | (3.34) | (2.95) |
| BVEwithoutCustomer |      |       |
| Ni             | 10.959*** | 11.060*** |
|                | (3.46) | (3.60) |
| CR             | 373.589** |       |
|                | (2.05) |       |
| _cons          | −10.197* | −14.598** |
|                | (−1.76) | (−2.58) |
| Industry       | Yes | Yes |
| Year           | Yes | Yes |
| N              | 475 | 475 |
| $R^2$          | 0.451 | 0.455 |

*, **, *** Denote significance at the 10%, 5%, and 1% levels, respectively.

This table presents regression results of the value relevance model. Standard errors are computed after clustering by firm. The t-statistics are reported in parentheses. All of the variables are defined in Table 3.

Table 10. 2SLS regression results.

|                | (1)  | (2)  |
|----------------|------|------|
|                | RD_{t-1} | CRPA_{t} |
| RD_{t-1}       |       | 0.098*** |
|                |       | (2.25) |
| Rdls           | −0.001*** |       |
|                | (−3.42) |       |
| Unemploy       | −0.004*** |       |
|                | (−10.49) |       |
| OverConf_{t-1} | −0.016*** | 0.003*** |
|                | (−12.24) | (2.75) |
| Growth_{t-1}   | −0.001** | 0.002*** |
|                | (−2.33) | (4.13) |
| SOE_{t-1}      | −0.006*** | −0.001 |
|                | (−12.29) | (−1.60) |
| LEV_{t-1}      | −0.047*** | 0.005** |
|                | (−28.63) | (2.19) |
| ROA_{t-1}      | −0.031*** | 0.002 |
|                | (−5.75) | (1.01) |
| SIZE_{t-1}     | −0.002*** | 0.002*** |
|                | (−7.99) | (11.78) |
| _cons          | 0.082*** | −0.048*** |
|                | (16.54) | (−9.58) |
| Industry       | Yes | Yes |
| Year           | Yes | Yes |
| N              | 20,795 | 20,795 |
| $R^2$          | 0.435 | 0.007 |

*, **, *** Denote significance at the 10%, 5%, and 1% levels, respectively.

This table presents the regression results of the relationship between R&D investment, managerial overconfidence, debt level and the recognition of customer-related intangible assets. Standard errors are computed after clustering. The t-statistics are reported in parentheses. All of the variables are defined in Table 3.
we could conclude that our instruments are not weak. In addition, there is no over-
identification of instrumental variables. Next, in the 2SLS regression, R&D intensity continues
to have a positive and significant impact on the recognition of customer-related intangibles,
consistent with previous findings.

7. Conclusions

Standard setters have a longstanding contention that whether customer relationships
should be recognised as identifiable intangible assets separately from goodwill. The IFRIC
and IASB have discussed a lot about practical issues and standards revision regarding
customer relationships. Chinese regulators are also very concerned about the recognition
of identifiable intangibles of listed firms in business combinations not under common
control.

Based on a sample of Chinese listed firms from 2007 to 2020, this study extends the
existing literature by examining the incremental value relevance and recognition beha-
viour of customer-related intangibles. We find that the customer-related intangibles
recognised separately from goodwill are positively correlated with the company’s stock
price, and investors give a positive valuation to the customer-related intangibles, which
suggests that identifiable intangible assets recognised separately from goodwill in M&A
provide useful information for investors. We then discuss the recognition behaviour of
customer-related intangibles from the perspectives of managerial overconfidence, inno-
vation investment and debt level. Our analysis indicates that the higher the proportion of
R&D investment, the more likely the company is to acquire and recognise customer-
related intangibles.

From the perspective of decision usefulness, accounting standards should continue to
require firms to recognise customer-related intangible assets separately from goodwill,
which can better reflect the essence of economic transactions and provide useful infor-
mation to investors. In addition, different firm-level characteristics will affect the discre-
tion of management and the recognition and measurement of financial statements.
Previous studies have rarely discussed the relationship between specific R&D investment
and the acquisition of specific resources in M&A. This paper further investigates the
relationship between managerial incentives, debt level, R&D investment and asset recog-
nition. The study shows that highly innovative firms tend to gain customer relationships
through business combinations to improve firm value.

The findings of this study have several practical implications. First, regulators should
further strengthen listed firms’ disclosure requirements of identifiable intangible assets.
For example, listed firms are required to clarify the initial recognition basis, valuation basis
and subsequent measurement of customer-related intangible assets. Appropriate gui-
dance should be given to the recognition and measurement of identifiable intangible
assets separately from goodwill, and managers should deliver information to the capital
market more accurately so that accounting information provides investors with useful
information, further realising efficient allocation of capital market resources. Firms should
strengthen relative information disclosure of customer relationships in the financial
statements and the notes, and adjust business strategy to the long-term customer
resources to reduce transaction friction.
This paper empirically studies the recognition and value relevance of customer-related intangibles but also has some limitations. Despite the rapid increase in customer-related assets in recent years, the sample of listed firms confirming customer relationships is still small. In addition, although the empirical results of value relevance are based on mature theoretical models, the endogeneity problem inevitably exists. More firm-level and institutional-level factors affecting the recognition of identifiable intangible assets can be explored. What’s more, a further study could assess the long-term effects of recognising identifiable intangible assets.

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