Determinants of becoming an M&A acquirer or target: evidence from the US insurance industry

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Abstract

Purpose – This paper explores which fundamental aspects of US insurance firms are significant factors in determining whether a firm will be a target or acquirer firm.

Design/methodology/approach – By focusing on 251 mergers and acquisitions (M&A) deals (119 target firms and 132 acquirer firms) over the period between 1990 and 2019, multinomial logistic regression results identify the determinants associated with becoming targets or acquirers.

Findings – US insurance firms are more likely to become targets if they are smaller, have lower cash holdings, are non-life, and do not have environmental, social and governance (ESG) scores. Insurance firms are more likely to be acquirers if they have higher profitability, higher cash flow and higher intangibles, and if they are non-life and do not have ESG scores. Moreover, the likelihood of becoming an acquirer decreases in times of global financial crises (GFCs) as compared to non-GFC times.

Originality/value – This paper is the first to utilize multi-period multinomial logistic regression analysis to investigate the determinants of selection decisions of M&A targets and acquirers in the US insurance industry.

Keywords Mergers and acquisitions, M&A targets, M&A acquirers, Multinomial logistic regression analysis, Insurance industry, US market

Paper type Research paper

1. Introduction

Rapid changes in communication and technology before the new millennium, as well as increasing competition and catastrophic risks, have affected the insurance industry and caused significant structural changes. In particular, the minimization of insurance firms' income due to catastrophic risks and increased competition has caused insurance firms to find new ways to reduce costs and increase efficiency. This in turn has increased the demand for mergers and acquisitions (M&A) transactions among insurance firms. A timely M&A decision is always a good alternative to insolvency, and it helps to prevent potential losses of policyholders, investors, agencies, managers and firms, as well as tax losses (BarNiv, 1990). Moreover, the latest global financial crisis (GFC) has revealed the importance of insurance companies on the economy and financial system (Rubio-Misas and Fernández-Moreno, 2017).

This increase in the M&A trend has encouraged researchers to examine the causes and effects of M&A. BarNiv and Hathorn (1997) consider M&A to be a good exit strategy for firms in financial distress. Chamberlain and Tennyson (1998) suggest that M&A activities could be a reaction to overall capital attrition due to factors such as huge catastrophic damage claims in the industry, unexpected high inflation and adverse asset returns. Moreover, an M&A transaction can lead to risk reductions and a possible increase in profitability by increasing

the insured pool of the acquirer (Mühlnickel and Weiß, 2015). Cummins *et al.* (2015) report that M&A transactions lead to substantial value creation for both acquirers and targets in the insurance industry. On the other hand, M&As can reduce competition which increases the soundness of the insurance markets (Cummins *et al.*, 2017) and improve the efficiency of insurance firms (Alshammari *et al.*, 2019).

M&A decisions attract the attention of various stakeholders such as managers, academicians, financial specialists, regulators and investors, in two ways (Doumpos *et al.*, 2004): First, stakeholders are particularly keen on obtaining information about the factors that increase the likelihood of M&A deals. Specifically, regulators may determine the potential targets and acquirers beforehand, using this information in order to prevent objectionable transactions and protect the general public interest. Moreover, to protect the insurance industry's financial stability from systemic risk, regulatory agencies have been striving to improve insurance regulation (Baranoff *et al.*, 2019). Second, setting the targets to be acquired before the transactions are announced would form the basis of an investment strategy, because share prices of the target firms often increase before the announcement of the acquisition. On the other hand, it is difficult to tell which factors such as insolvency, poor management, bad investment, wrong decisions or economic factors trigger M&A deals in the industry, since the reasons for M&A decisions are not disclosed to the public in general (BarNiv, 1990). Moreover, for privacy reasons, target companies are often reluctant to disclose detailed information on core technologies and resources before M&As (Tang and Li, 2018). Therefore, many academics and practitioners try to explore the reasons for M&As, their effects and M&A targets (Arouri *et al.*, 2019). For example, Gomes (2019) reports that the corporate social responsibility performance of target firms is important for acquirers' firms. The proper classification (target and non-target) levels used in target firm prediction in these studies vary depending on the variables, models, data and samples (Appadu *et al.*, 2016).

Following previous studies, our legitimate research question is which fundamental aspects of US insurance firms are significant factors in determining whether a firm will be a target or acquirer firm. This question leads us to explore the determinants of selection decisions of M&A targets and acquirers in the insurance industry. We used multinomial logistic regression to analyze the data from 251 M&A deals (119 target firms and 132 acquirer firms) in the US insurance industry over the period between 1990 and 2019. We report that US insurance firms are more likely to become targets if they are smaller, have lower cash holdings, are non-life, and do not have environmental, social and governance (ESG) scores. Insurance firms are more likely to be acquirers if they have higher profitability, higher cash flow and higher intangibles, and if they are non-life and do not have ESG scores. Moreover, the likelihood of becoming an acquirer decreases in times of GFCs as compared to non-GFC times.

Our paper seeks to contribute to the literature by examining the determinants of the likelihood of being a target or acquirer firm in the insurance industry. Most of the papers on M&A within the financial services industry have focused on banking. However, most insurance-related papers have been conducted to explore realized performance gains or the value creation that occurs after M&As (see Cummins and Xie, 2008, 2009; Cummins *et al.*, 1999, 2015; Shim, 2011). Fewer papers have been devoted to the determinants of being potential M&A targets and acquirers. For example, Meador *et al.* (1986) investigate potential acquisition targets in the US non-life insurance industry over the period from 1965 through 1967. Cummins and Rubio-Misas (2019) examine the determinants of the likelihood of being a target or acquirer firm in the Spanish insurance industry. Our paper is the first to utilize multi-period multinomial logistic regression analysis to investigate the determinants of selection decisions of M&A targets and acquirers in the US insurance industry. Therefore, this paper fills an important gap in the field.

The rest of the paper is organized as follows: In Section 2, we discuss related literature. In Section 3, we describe our data and discuss our empirical procedure. In Section 4, we report the results. Section 5 concludes the paper.

2. Theoretical framework

2.1 M&As in insurance industry

In the last thirty years, the insurance industry in the US experienced a wave of M&As. This wave was driven by some difficulties in the industry. Particularly, the compliance requirement stipulated by the compulsory risk-based capital standards in 1994 led certain vulnerable insurance firms to seek M&A opportunities to solve their financial problems (Cummins and Xie, 2008). Because the sub-prime mortgage crisis made the repayment of many mortgage loans impossible, a very high number of loan-based insurance policies were canceled. Overall, all these reasons led insurance firms to find new ways to reduce costs and increase efficiency. This is because a firm's competitive advantage and overall firm performance are embedded in its efficiency (Eling and Jia, 2019). Low premiums and low profitability of the industry, catastrophic risks (such as earthquakes, hurricanes and terrorism), constantly changing interest rates and fluctuations in the stock market forced some insurance firms to adapt to the changing market environment through M&A (Graham and Xie, 2007).

After these developments in the industry, M&A became a topic that drew the attention of many researchers. There have been a few studies on European and US insurance financial sector M&As. In a leading study on M&A transactions of European insurance companies, Cummins and Weiss (2004) analyze merger transactions in 17 European countries over the period from 1990 through 1997. Based on 52 deals, they report significant market value gains for within-country, insurance-to-insurance transactions and transactions where banks acquired insurance companies. However, they do not find any market value gains for cross-border transactions or transactions involving banks. Akhigbe and Madura (2001) find that US insurance mergers are value-creating for both acquirers and targets; moreover, the value-creation for targets is significantly larger than for acquirers. Cummins and Rubio-Misas (2006) analyze consolidation in the Spanish and US life insurance markets using book value data to measure technical, cost and profit efficiency. Both papers find that consolidation leads to significant improvements in efficiency and to price reductions.

2.2 Determinants of becoming an acquirer or target: a review of the literature

Findings on M&A motives are classified in various ways; all identified motives use the same basis. Trautwein (1990) determines seven M&A motives: efficiency theory, appreciation theory, monopolization strength theory, asset transfer theory, management interest theory, process theory and external factors theory (macro-economic factors). Ingham et al. (1992) details M&A motives and discusses roughly 15 motives. These include profitability, market strength, scale economy, risk distribution, managerial know-how, cost reduction, turnover increase, buying out competitors, exploiting low target firm value, promoting resource abundance and creating market entry barriers. However, Berger et al. (1999) believe that M&A is determined by the economic environment, which changes the restrictions the financial industry faces. They define five macro-economic factors that affect the sudden acceleration in M&A. These are technological advances, improvement in financial conditions, financial pinch in the markets, international consolidation of the markets and removal of geographic or product constraints. Akhtar (2016) reports that M&A decisions are driven mainly by agency and hubris behavior rather than synergy motives. With all these motives established, we can now discuss commonly used determinants in the literature.

Palepu (1986) suggests the firm size hypothesis, which predicts that smaller firms tend to be targets. This is because transaction costs are likely to increase with the target firm size and hence small firms are easier to acquire than large firms (Beccalli and Frantz, 2010). Large firms may be more likely to undertake more M&As, as larger firms are more likely to perform and finance at a lower cost than smaller firms (Al-Sabri *et al.*, 2020). However, if economies of scale or market power are critical motives in the purchasing process so that the acquirer finds it more desirable to buy a larger firm, then the probability of acquisition can be expected to increase with the size of the target (Hannan and Pilloff, 2009). Moreover, large firms can better realize efficiencies by internalizing capabilities or technologies from the target firm, because they can apply these assets on an adequately large scale (Luypaert and Huyghebaert, 2007).

The inefficient management hypothesis predicts that inefficiently managed firms tend to be M&A targets (Van Wyk and Nguyen, 2010). Inefficient management is proxied by profitability, implying that the higher a firm's profitability, the more likely it is that firm's management would be more efficient. In addition, the ratio of a company's revenues to the value of its assets is known as the asset turnover ratio. It serves as an indicator of efficiency, which is a gauge of how well a business uses its resources to generate money. Therefore, the ratio of revenue-to-total assets can also be utilized to evaluate management inefficiency. Lower efficiency may lead to firms being targeted, while more efficiency may lead to firms becoming an acquirer (Beccalli and Frantz, 2013). Hannan and Pilloff (2009) argue that if the target has greater inefficiency and lower profitability, this poor performance may make the target more attractive for acquisition.

Since debt limits free cash flows available for managerial discretionary spending, a firm's leverage ratio may have a negative impact on external growth (Jensen, 1986). Thus, according to agency theory, increased indebtedness may result in fewer M&A deals. By diversifying their M&A, high-leverage companies might attempt to lessen their systematic risk and achieve a reduced cost of capital. The utilization of such M&As may increase the amount of available borrowing capacity because of the coinsurance effect (Luypaert and Huyghebaert, 2007). Leverage can be also seen as a form of anti-takeover protection, increasing the propensity of highly indebted companies to make an acquisition bid (Akhtar, 2016).

The managers of insurers with high capital ratios may be operating farther below their profit potential because of the decreased need to achieve high profitability, while acquirers facing regulatory pressure to enhance capitalization may choose highly capitalized insurers (Cummins and Rubio-Misas, 2019). On the other hand, better-capitalized institutions would be less appealing to potential buyers since the potential gains from improved management would be fewer if capitalization were viewed as a gauge of managerial effectiveness. The supervisor could encourage an acquisition by a well-capitalized acquirer if a firm has a very low capitalization level (Hernando *et al.*, 2009). When capitalization might reflect past profitability and thus managerial ability or efficiency, better-capitalized firms would be less desirable to prospective buyers since, on average, they would generate smaller profits from the purchasing company's alleged superior management or efficiency (Hannan and Pilloff, 2009).

Cash holdings determine the ability of an insurance firm to meet its financial responsibilities; therefore, it is an important financial ratio that indicates whether the firm has liquidity problems and can sustain itself financially. The impact of liquidity on M&A can be positive or negative. For example, the acquisition of firms with stronger liquidity positions limits the risk of liquidity shocks, or they can be acquired if they have liquidity problems (Beccalli and Frantz, 2013). Additionally, according to the agency hypothesis, businesses invest more in M&A due to increased cash holdings. This occurs because managers of cash-rich companies choose M&A rather than paying dividends to shareholders who can benefit most from doing so (Al-Sabri *et al.*, 2020).

The free cash flow hypothesis predicts that managers of firms with a higher free cash flow are more likely to overinvest and execute unprofitable projects (Jensen, 1986). This surplus of cash may lead firms to engage in M&A deals. Businesses that overinvest frequently make investments with a negative net present value, making them more susceptible to being targeted (Beccalli and Frantz, 2010).

It can be expected that firms with high tangible assets will also be large in size. Therefore, in theory, firms with low tangible assets, similar to firm size, can be expected to be more likely to be M&A targets. On the other hand, firms with high tangible assets can invest more because their borrowing capacity will be high. This, in turn, can increase their likelihood of becoming M&A acquirers. Al-Sabri *et al.* (2020) argue that tangible assets may have an impact on the choice of investment in M&As, because businesses frequently invest in tangible assets to ease their financial constraints before gradually shifting their investments to intangible and liquid assets.

Firms that attempt to internalize intangibles by acquiring targets with higher intangibles are more likely to suffer from potential maintenance, integration, and pricing issues of the targets because of the tacitness, complexity and causal uncertainty of the same intangibles (Arikan, 2002). This may increase the probability of firms with lower intangibles becoming a target firm. Luypaert and Huyghebaert (2007) argue that larger intangible capital signifies greater potential for synergy benefits and firms are motivated to transfer this knowledge power to their own organization, thus intangible capital may positively affect the motives for external growth through M&As.

3. Methodology
This section discusses the paper's methodological aspects, including sampling, variables and empirical procedures.

3.1 Sampling
This research covers companies operating in the US insurance industry that were subject to M&A between 1990 and 2019. The Thomson Reuters Eikon database is used to extract the related M&A transactions and firm-level data. The sample starts with 1990 since the database data for M&A deals before 1990 is poor. Moreover, we exclude 2020 data to omit the effects of the COVID-19 pandemic. Our sampling criteria for M&A transactions are as follows: (1) We consider deals where both the acquirer and target are headquartered in the US, and both operate in the insurance industry. (2) We exclude M&A transactions that are pending, terminated or non-binding. (3) We focus on disclosed and undisclosed dollar value M&A deals where the acquirer absorbs the target. (4) We do not consider firms with missing financial statement data for the year prior to each deal, since we match the date of M&A deals with the prior year's financial statement data. Our reference sample is insurer firms that did not engage in M&As between 1990 and 2019. After merging various data sets and following our sampling criteria, our sample consists of 119 target firms and 132 acquiring firms over the period from 1990 through 2019. The reference sample consists of 87 non-M&A firms.

3.2 Empirical procedure and variables
We aim to explore which fundamental aspects of US insurance firms are significant factors in determining whether a firm will be a target or acquirer firm. Thus, our outcome variable is an unordered ternary variable that indicates whether a firm is a non-M&A firm, a target firm or an acquirer firm (0 = observations of non-M&A firms; 1 = target firms; 2 = acquirer firms). Outcome variables in social science studies are often categorical in nature, and it is not possible to examine them by linear regression models. In these cases, one of the regression models that can be used is logistic regression. It allows us to discover the relations between categorical

dependent variables and continuous independent variables. Moreover, in our case, it is useful in predicting which category a firm is most likely to belong to. Because our dependent variable has three categories, we use multi-period multinomial logistic regression analysis.

A multinomial logistic regression explains the probability of an event taking place as a function of a vector of independent covariates X and parameters β. In our case, it takes the following form (Beccalli and Frantz, 2010):

$$p(Y_t = i|t-1, X) = \frac{e^{\alpha+\beta.X}}{1 + e^{\alpha+\beta.X}}$$

where $i = 0$ represents the event of not being involved in an M&A, $i = 1$ represents the event of becoming a target, $i = 2$ represents the event of becoming an acquirer, and $p(Y_t = i|t-1, X)$ represents the probability that $Y_t = i$ at date t conditional on the information set available at date $t-1$. All predictor variables are obtained from the latest pre-acquisition balance sheets for target and acquirer firms. The parameters α and β are estimated by the logistic regression. We use non-M&A firms as the base outcome.

First, following Cummins and Rubio-Misas (2019), we want to explore the effect of basic firm characteristics by including firm size, profitability, leverage, revenue and capital in determining whether firms will be a target firm or acquirer firm. To ease concerns about other unobservable and uncontrolled firm-specific characteristics, we include a dividend payer dummy variable equal to 1 for cash dividend payer firms, an insolvency risk dummy variable equal to 1 for firms with negative total equity, and an ESG disclosure dummy variable equal to 1 for firms with ESG scores on the Thomson Reuters Eikon database. We also control the effect of financial crises by adding GFC and dotcom bubble crisis dummy variables. Moreover, to ease concerns about other unobservable and uncontrolled industry-specific characteristics, we also include a LIFE dummy variable equal to 1 for Life & Health Insurance firms, and sub-industry effects dummy variables based on the Thomson Reuters Activity Name Classification. This also helps to address the potential omitted variable problem. Later, we consider cash holdings, cash flow, tangibility and intangibility, respectively, to investigate their effects as a determinant of becoming an M&A acquirer or target. Definitions, measurements and sources of these variables are displayed in Table 1.

In Table 2, we report the descriptive statistics of the firm-level variables. Panel A reports the mean, median, standard deviation, minimum and maximum values of variables in the non-M&A firm sample. Panels B and C report descriptive statistics of variables in the target and acquirer firms' samples, respectively. Finally, panel D reports statistical comparisons for the variables' mean values between target vs acquirer, non-M&A vs target and non-M&A vs acquirer. The results of the differences tests between the samples show that the profitability, cash holdings and cash flow of target firms are lower than those of acquirer firms. The size and cash holdings of the non-M&A firms are higher than those of target firms, while their intangibles are lower than those of target firms. The profitability, revenue, capital, cash holdings, cash flow and intangibles of the non-M&A firms are lower than those of acquirer firms, while their size is larger than those of acquirer firms.

Table 3 reports the correlation results. There is no high-level correlation (above 0.70) among the independent variables. Moreover, we computed the variance inflation factor; untabulated results show that all VIF values are less than 5. Both results indicate the absence of the multicollinearity problem.

4. Results
This section presents multinomial regressions results that examine which fundamental aspects of US insurance firms are significant factors in determining whether a firm will be a

Variable	Measurement/definition	Sources
SIZE	Size is defined as the natural logarithm of total assets in US dollars	Eikon
PROFITABIL	PROFITABIL is defined as the ratio of net income after taxes to total equity	As above
LEVERAGE	LEVERAGE is defined as the ratio of total interest-bearing liabilities, such as bank borrowings, mortgage loans, bonds, and capital leases to total assets	As above
REVENUE	REVENUE is defined as the ratio of total revenue to total assets	As above
CAPITAL	CAPITAL is defined as the ratio of total equity to total assets	As above
CASH_HOLD	CASH_HOLD is defined as the ratio of cash and equivalents to total assets	As above
CASH_FLOW	CASH_FLOW is operating cash flow and it is defined as the ratio of cash from operating activities to total assets	As above
TANGIBLE	TANGIBLE is defined as the ratio of total tangible to total assets	As above
INTANGIBLE	INTANGIBLE is defined as the ratio of total intangibles to total assets	As above
LIFE	LIFE is a dummy variable equal to 1 for Life & Health Insurance firms, otherwise zero	As above
DIV_PAYER	DIV_PAYER is a dummy variable equal to 1 for cash dividend payer firms, otherwise zero	As above
INSOLVENCY	INSOLVENCY is a dummy variable equal to 1 for firms with negative total equity, otherwise zero	As above
ESG_DISC	ESG_DISC is a dummy variable equal to 1 for firms with ESG scores on the Thomson Reuters Eikon database, otherwise zero	As above
GFC	GFC is a dummy variable equal to 1 for 2008, 2009, 2010, 2011, and 2012 when the global financial crisis occurred, otherwise zero	
DOTCOM	DOTCOM is a dummy variable equal to 1 for 2000 and 2001 when the dot.com bubble occurred, otherwise zero	

Table 1.
Data definitions,
measurements and
sources

target or acquirer firm. In Table 4, we present the multinomial logistic regression analysis results. Panel A of the table displays the target likelihood regression results, while panel B of the table displays the acquirer likelihood regression results. Column 1 includes our base model. Columns 2–5 add cash holdings, cash flow, tangibility, and intangibility of firms, respective to our base model.

For column 1, the likelihood ratio chi-square test for the inclusion of variables in an intercept-only, or null, model is significant ($\chi^2 = 118$; $p < 0.01$), indicating that the logistic model provides a better fit to the data. Thus, the model containing the full set of predictors represents a significant improvement in fit relative to a null model, and we can infer that at least one population slope is non-zero. The $-2LL$ ($-2\log$ likelihood) value for the initial model was 865, while column 1 shows that the $-2LL$ value with the five independent variables decreases to 806. After adding the independent variables to the initial model, the difference of $-2LL$ is 59, implying that the model improves predictions of the outcome variable. Nagelkerke's pseudo-R2 value, indicating the usefulness of the five variables in explaining the variance between firm groups, is %7. Specifically, the logistic regression model can explain %7 of the variance in the cases of firms being targets or acquirers. Although this ratio is relatively small, our main interest is the contribution of explanatory variables in determining whether firms will be target or acquirer firms.

Evidence on the likelihood of becoming a target (see Panel A, Column (1)) indicates that the *SIZE* predictor is negative and significant ($\beta = -0.123$, $t = -2.14$, $p < 0.01$). This shows that for each one-unit increase on firm size, the log odds of a firm falling into the target firm category (relative to the non-M&A firm category) is predicted to decrease by 0.123 units. This result suggests that the lower the firm's size, the more likely it is that a firm would be an M&A target. The LIFE and ESG_DISC predictors are negative and significant. Non-life insurance firms are more likely to be targets than life insurance firms and firms with without ESG scores are more likely to be targets than firms with ESG scores. On the other hand, the

	Observation	Mean	Median	St. deviation	Minimum	Maximum
Panel A: Non-M&A firms						
SIZE	1,376	21.97	22.03	2.733	16.16	26.28
PROFITABIL	1,377	0.073	0.083	0.141	−0.379	0.474
LEVERAGE	1,364	0.063	0.026	0.115	0.000	0.593
REVENUE	1,371	0.306	0.211	0.349	0.008	1.660
CAPITAL	1,376	0.231	0.192	0.187	0.007	0.774
CASH_HOLD	1,072	0.073	0.026	0.133	0.000	0.647
CASH_FLOW	1,357	0.026	0.024	0.061	−0.191	0.164
TANGIBLE	1,305	0.562	0.620	0.237	0.014	0.896
INTANGIBLE	638	0.039	0.012	0.074	0.000	0.395
Panel B: Target firms						
SIZE	119	21.19	20.99	2.045	16.16	26.12
PROFITABIL	119	0.068	0.078	0.143	−0.379	0.474
LEVERAGE	119	0.063	0.025	0.091	0.000	0.593
REVENUE	119	0.354	0.264	0.315	0.008	1.548
CAPITAL	119	0.247	0.244	0.159	0.007	0.774
CASH_HOLD	78	0.052	0.031	0.077	0.000	0.542
CASH_FLOW	119	0.026	0.023	0.057	−0.191	0.164
TANGIBLE	113	0.576	0.629	0.229	0.014	0.896
INTANGIBLE	52	0.058	0.009	0.101	0.000	0.395
Panel C: Acquirer firms						
SIZE	132	21.12	20.64	2.432	16.16	26.28
PROFITABIL	131	0.109	0.113	0.129	−0.379	0.474
LEVERAGE	131	0.064	0.033	0.092	0.000	0.593
REVENUE	132	0.377	0.270	0.335	0.025	1.660
CAPITAL	132	0.278	0.258	0.187	0.007	0.774
CASH_HOLD	83	0.095	0.047	0.153	0.001	0.647
CASH_FLOW	130	0.045	0.041	0.062	−0.191	0.164
TANGIBLE	125	0.565	0.620	0.244	0.014	0.896
INTANGIBLE	71	0.062	0.017	0.105	0.000	0.395

	Target vs Acquirer		Non-M&A vs Target		Non-M&A vs Acquirer	
Panel D: mean differences						
SIZE	0.070		0.786	***	0.857	***
PROFITABIL	−0.041	**	0.005		−0.036	**
LEVERAGE	−0.001		0.000		−0.000	
REVENUE	−0.023		−0.047		−0.070	**
CAPITAL	−0.030		−0.016		−0.047	**
CASH_HOLD	−0.042	**	0.020	*	−0.022	*
CASH_FLOW	−0.019	**	−0.000		−0.019	***
TANGIBLE	0.011		−0.014		−0.002	
INTANGIBLE	−0.004		−0.018	*	−0.023	

Table 2.
Descriptive statistics

coefficients of profitability, leverage, revenue, capital, GFC, dotcom, dividend payer and insolvency risk variables are insignificant, indicating that they are not significant contributors to the likelihood of becoming a target.

Evidence on the likelihood of becoming an acquirer (see Panel B, Column (1)) indicates that, the *PROFITABIL* predictor is positive and significant ($\beta = 2.118$, $t = 2.74$, $p < 0.01$). This shows that for each one-unit increase on firm profitability, the log odds of a firm falling into the acquirer firm category (relative to the non-M&A firm category) is predicted to increase by

Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
SIZE	(1)	1.000								
PROFITABIL	(2)	0.075	1.000							
LEVERAGE	(3)	−0.249	0.010	1.000						
REVENUE	(4)	−0.410	0.088	0.234	1.000					
CAPITAL	(5)	−0.548	−0.077	−0.038	0.424	1.000				
CASH_HOLD	(6)	−0.415	−0.052	0.149	0.286	0.379	1.000			
CASH_FLOW	(7)	0.002	0.367	−0.145	0.320	0.210	0.024	1.000		
TANGIBLE	(8)	−0.134	0.010	−0.191	−0.126	0.189	−0.341	0.064	1.000	
INTANGIBLE	(9)	−0.015	0.038	0.526	0.444	0.304	0.070	0.127	−0.315	1.000

Table 3.
Correlation matrix

2.148 units. This result suggests that the higher the firm profitability, the more likely it is that a firm would be an M&A acquirer. The GFC predictor is negative and significant ($\beta = -0.955$, $t = -2.98$, $p < 0.01$). This result indicates that the likelihood of becoming an acquirer decreases in GFCs times as compared to non-GFC times. The LIFE and ESG_DISC predictors are negative and significant. Non-life insurance firms are more likely to be acquirers than life insurance firms and firms with without ESG scores are more likely to be acquirers than firms with ESG scores. On the other hand, the coefficients of size, leverage, revenue, capital, dotcom, dividend payer and insolvency risk variables are insignificant, indicating that they are not significant contributors to the likelihood of becoming an acquirer.

Regarding the cash holdings variable, evidence on the likelihood of becoming a target (see Panel A, Column (2)) indicates that the $CASH\_HOLD$ predictor is negative and significant ($\beta = -2.971$, $t = -1.85$, $p < 0.10$). This shows that for each one-unit increase on firm cash holdings, the log odds of a firm falling into the target firm category (relative to the non-M&A firm category) is predicted to decrease by 2.971 units. This result suggests that the lower the firm's cash holding, the more likely it is that a firm would be an M&A target. On the other hand, evidence on the likelihood of becoming an acquirer (see Panel B, Column (2)) indicates that the coefficient of the cash holdings variable is insignificant, and thus it is not a significant contributor to the likelihood of becoming an acquirer.

Regarding the operating cash flow variable, evidence on the likelihood of becoming a target (see Panel A, Column (3)) indicates that the coefficient of the operating cash flow variable is insignificant, and thus it is not a significant contributor to the likelihood of becoming a target. On the other hand, evidence on the likelihood of becoming an acquirer (see Panel B, Column (3)) indicates that the $CASH\_FLOW$ predictor is positive and significant ($\beta = 3.721$, $t = 1.85$, $p < 0.10$). This shows that for each one-unit increase on firm operating cash flow, the log odds of a firm falling into the acquirer firm category (relative to the non-M&A firm category) is predicted to increase by 3.721 units. This result suggests that the higher the firm's operating cash flow, the more likely it is that a firm would be an M&A acquirer.

Regarding the tangible variable, evidence on the likelihood of becoming both target and acquirer (see Column (4)) indicates that the coefficients of the tangible variable are insignificant, and thus they are not a significant contributor to the likelihood of becoming both target and acquirer. On the other hand, regarding the intangible variable, evidence on the likelihood of becoming acquirer (see Column (5)) indicates that the coefficient of the intangible variable is positive and significant. This result suggests that the higher the firm's intangible assets, the more likely it is that a firm would be an M&A acquirer.

In summary, US insurance firms are more likely to become targets if they are smaller, have lower cash holdings, are non-life and do not have ESG scores. Insurance firms are more likely to be acquirers if they have higher profitability, higher cash flow and higher intangibles, and

Table 4.
Multinomial logistic regression analysis results

	(1)	(2)	(3)	(4)	(5)
Panel A. Targets likelihood regressions					
SIZE	-0.123** (-2.14)	-0.070 (-1.03)	-0.113* (-1.95)	-0.135** (-2.20)	-0.105 (-1.16)
PROFITABIL	-0.064 (-0.08)	-0.576 (-0.62)	0.073 (0.08)	-0.243 (-0.27)	-0.132 (-0.10)
LEV	-0.194 (-0.19)	0.367 (0.33)	-0.331 (-0.32)	-0.916 (-0.75)	0.571 (0.28)
REVENUE	-0.024 (-0.07)	0.147 (0.34)	0.016 (0.05)	-0.206 (-0.50)	-1.018 (-1.57)
CAPITAL	-0.921 (-1.13)	-0.134 (-0.13)	-0.850 (-1.04)	-0.463 (-0.52)	2.312* (1.67)
GFC	-0.197 (-0.75)	-0.356 (-1.10)	-0.206 (-0.78)	-0.171 (-0.63)	-0.257 (-0.66)
DOTCOM	-0.227 (-0.51)	-0.273 (-0.50)	-0.232 (-0.52)	-0.389 (-0.80)	-6.910 (-0.46)
LIFE	-1.051*** (-2.89)	-0.833* (-1.90)	-1.077*** (-2.94)	-0.993*** (-2.68)	-0.598 (-1.07)
DIV_PAYER	0.293 (1.27)	0.129 (0.46)	0.265 (1.14)	0.324 (1.33)	0.371 (0.95)
INSOLVENCY	-1.876 (-1.57)	-0.423 (-0.37)	-1.922 (-1.50)	-7.086 (-0.24)	-7.779 (-0.19)
ESG_DISC	-0.796*** (-2.72)	-0.604* (-1.78)	-0.811** (-2.77)	-0.740** (-2.45)	-1.216*** (-2.97)
CASH_HOLD		-2.971* (-1.85)			
CASH_FLOW			-0.965 (-0.45)		
TANGIBLE				-0.032 (-0.07)	
INTANGIBLE					3.621 (1.57)
Intercept	0.566 (0.43)	-0.744 (-0.48)	0.388 (0.29)	0.776 (0.53)	-0.360 (-0.17)
Industry effects	Yes	Yes	Yes	Yes	Yes
Panel B. Acquirers likelihood regressions					
SIZE	-0.040 (-0.69)	-0.068 (-0.99)	-0.033 (-0.57)	-0.043 (-0.73)	-0.171** (-1.97)
PROFITABIL	2.218*** (2.74)	2.592*** (2.77)	1.643* (1.90)	2.365*** (2.81)	3.440*** (2.66)
LEV	0.410 (0.39)	-0.222 (-0.18)	0.687 (0.63)	0.200 (0.17)	-1.552 (-0.66)
REVENUE	0.232 (0.66)	-0.160 (-0.37)	0.081 (0.22)	0.234 (0.59)	-0.917 (-1.57)
CAPITAL	0.825 (1.10)	0.349 (0.39)	0.786 (1.04)	1.027 (1.29)	4.203*** (3.44)
GFC	-0.955*** (-2.98)	-0.785** (-2.12)	-0.900*** (-2.79)	-0.947*** (-2.83)	-1.433*** (-2.84)
DOTCOM	-0.573 (-1.19)	-0.185 (-0.34)	-0.591 (-1.22)	-0.560 (-1.15)	-1.026 (-1.31)
LIFE	-0.790** (-2.38)	-0.705* (-1.70)	-0.721** (-2.14)	-0.741** (-2.20)	-0.963* (-1.81)
DIV_PAYER	-0.056 (-0.25)	-0.121 (-0.45)	-0.111 (-0.50)	-0.225 (-0.98)	0.329 (0.94)
INSOLVENCY	-0.984 (-1.03)	-1.366 (-1.14)	-0.551 (-0.57)	0.186 (0.20)	-8.571 (-0.24)
ESG_DISC	-0.768*** (-2.76)	-0.445 (-1.35)	-0.806*** (-2.88)	-0.591** (-2.08)	-1.262*** (-3.42)
CASH_HOLD		0.202 (0.24)			

(continued)

	(1)	(2)	(3)	(4)	(5)
CASH_FLOW			3.721* (1.85)	−0.042 (−0.09)	5.163** (2.39)
TANGIBLE					
INTANGIBLE					1.014 (0.50)
Intercept	−1.450 (−1.09)	−0.886 (−0.57)	−1.645 (−1.24)	−1.343 (−0.94)	
Industry effects	Yes	Yes	Yes	Yes	Yes
Observations	1,610	1,223	1,598	1,526	761
LR χ^2	118***	71***	122**	117***	127***
Pseudo R^2	0.07	0.06	0.07	0.07	0.15
Log pseudo likelihood	−806	−552	−802	−761	−356

Table 4.

if they are non-life and do not have ESG scores. Moreover, the likelihood of becoming an acquirer decreases in times of GFCs as compared to non-GFC times.

5. Discussion and conclusion

In this paper, we investigate the determinants of selection decisions of M&A targets and acquirers in the insurance industry. We use multinomial logistic regression to analyze the data from 251 M&A deals (119 target firms and 132 acquirer firms) in the US insurance industry over the period between 1990 and 2019.

Our evidence is consistent with the results of previous studies. First, following the firm size hypothesis, which predicts that smaller firms tend to be targets (Palepu, 1986), we find that smaller insurers are more likely to be targets. This is because transaction costs are likely to increase with the target firm size, and hence small firms are easier to acquire than large firms (Beccalli and Frantz, 2010). In addition, we do not report any significant relationship between size and the likelihood of becoming an M&A acquirer [1].

Second, Kusewitt (1985) concludes that the profitability of target firms is positively related to the post-acquisition financial performance of the acquirer firms. Therefore, he suggests that targets should be profitable to sustain profitability after the acquisition. Moreover, Ingham *et al.* (1992) show that 80% of managers consider the expectation of increased profitability as the most important motivation for M&A. On the other hand, the inefficient management hypothesis predicts that inefficiently managed firms tend to be M&A targets (Van Wyk and Nguyen, 2010). Inefficient management is proxied by profitability, implying that the higher the firm's profitability, the more likely it is that firm's management would be more efficient. Previous studies consistently report that more profitable firms are more likely to be M&A acquirers (Beccalli and Frantz, 2010; Cummins and Rubio-Misas, 2019; Cummins and Xie, 2008). This result can be interpreted as acquisitions requiring resources (Cummins and Xie, 2008). Consistent with previous studies, we find that profitable insurers may be more likely to be acquirer firms. Additionally, we do not report any significant relationship between profitability and the likelihood of becoming an M&A target.

Third, the cash holding ratio determines the ability of the insurance firm to meet its financial responsibilities; therefore, it is an important financial ratio that indicates whether the firm has liquidity problems and can sustain itself financially. As BarNiv and Hathorn (1997) state, M&A is a good exit strategy for firms in financial distress. Similarly, Cummins and Xie (2008) state that according to the corporate control theory, some firms prefer the alternative of a merger and acquisition in order not to declare insolvency. Moreover, according to the results of a survey conducted on the CEOs of the UK's top 500 firms, Ingham *et al.* (1992) report that one of the most important factors for company managers when choosing a target is the proposals made by financially distressed companies. Consistent with previous studies (Beccalli and Frantz, 2010; Cummins and Xie, 2008), we find that insurance firms are more likely to be a target if they have lower cash holdings.

Fourth, the free cash flow hypothesis predicts that managers of firms with a higher free cash flow are more likely to tend to overinvest and execute unprofitable projects (Jensen, 1986). This surplus of cash may lead firms to engage in M&A deals. Okofo-Dartey and Kwenda (2021) study M&A transactions in emerging markets and they report a positive relationship between the cash flow of acquirers and the execution of M&As, implying that cash flow positively affects the likelihood of becoming an M&A acquirer. Consistent with this evidence, we find that insurance firms are more likely to be an acquirer if they have a higher cash flow.

Fifth, it can be expected that firms with high tangible assets will also be large in size. Therefore, in theory, firms with low tangible assets, similar to firm size, can be expected to be more likely to be M&A targets. Kusewitt (1985) suggests that targets should not be excessively large to handle the issue of "biting off more than you can chew." On the other

hand, firms with high tangible assets can invest more because their borrowing capacity will be high. This, in turn, can increase their likelihood of becoming M&A acquirers. However, there are opposite findings to this expectation in the literature. For example, Al-Sabri *et al.* (2020) report that asset tangibility negatively affects the likelihood of becoming an M&A acquirer. We do not report any significant relationship between tangibility and the likelihood of becoming an M&A target or acquirer.

Sixth, intangible assets are information-based resources, i.e. technology, brand equity, patent stock, culture and management skills, and resource-based view theory views these assets as a source of sustainable competitive advantage (Arikan, 2002). Luypaert and Huyghebaert (2007) report that intangible capital positively affects the motives for external growth through M&As in a sample of Belgian firms. They interpret this finding due to the fact that larger intangible capital signals a greater potential for synergy benefits, and firms are motivated to transfer this knowledge power to their own organization. In line with these arguments, we find that the higher the firm's intangible assets, the more likely it is that a firm would be an M&A acquirer.

Rapid changes in communication and technology before the new millennium, as well as increasing competition and catastrophic risks, have affected the insurance industry and caused significant structural changes. These risks lead insurance firms to find new ways to reduce costs and increase efficiency. Therefore, the increase in the M&A trend has encouraged researchers to examine the causes and effects of M&A. This paper presents a simple and efficient model in determining M&A targets or acquirers in the US insurance industry. By doing so, our findings can help managers, academicians, financial specialists, regulators and investors by easing decision-making on determining potential targets and acquirers. They may potentially consider smaller insurers with lower cash holdings as a target, and insurers with higher profitability, higher cash flow and higher intangibles as an acquirer. Future studies can be carried out to examine the effects of environmental and social factors, as well as governance and its subcomponents (such as resource use score, emissions score, environmental innovation score, workforce score, human rights score, community score, product responsibility score, management score, shareholders score and corporate social responsibility strategy score) in determining whether firms will be target or acquirer firms. Moreover, future studies could look at the impact of the institutional environment characteristics (such as voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption) of the countries in which insurance firms operate, to determine whether firms will be target or acquirer firms in an international setting.

Note

1. Evidence on the likelihood of becoming an acquirer (see Panel B, Column (5)) indicates that, *first*, the SIZE predictor is negative and significant ($\beta = -0.171$, $t = -1.79$, $p < 0.05$). This shows that for each one-unit increase on firm size, the log odds of a firm falling into the acquirer firm category (relative to the non-M&A firm category) is predicted to decrease by 0.171units. This result suggests that the lower the firm's size, the more likely it is that a firm would be an M&A acquirer. We have doubts about the reliability of the result since a statistically insignificant finding was reached in all other models. Therefore, while interpreting the practical implications of this finding, it needs to pay special attention. However, we were expecting a positive sign for acquirer firms because large firms with more resources to use in acquisitions have the advantage of being buyers (Cummins and Xie, 2008). Contradicting our expectation, this finding is in line with Akhtar (2016) who also finds that the lower the firm's size, the more likely it is that a firm would be an M&A acquirer. This result can be interpreted due to the fact that in large firms, high CEO turnover is more likely to increase management inefficiency, and thus these firms may be disciplined by the market for corporate control (Akhtar, 2016).

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