Finance 701

Research Critique

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1 Abstract

This paper critically evaluates the journal article 'A bold move or biting off more than they can chew: examining small acquirers performance for quality and robustness. The critique reviews each section sequentially. Prior literature informs the research process. Several features reduce endogeneity while increasing the validity, verifiability, reliability, and replicability of the analysis: The data/data source(s); methodology investigating H_1 and H_2; econometric techniques; and methods associated with abnormal returns and ROA. It is possible to improve the article by addressing the criticisms around abnormal trading volumes, information environment and methodology exploring H_3 and H_4. Overall, the paper is of suitable quality and robustness.

2 Introduction

This paper critically reviews:

- Harp, N. L., Kim, K. H., & Oler, D. K. (2021). A bold move or biting off more than they can chew: examining the performance of small acquirers. Review of Quantitative Finance and Accounting, 56(2), 393–422.

The purpose of this review is to evaluate the quality and robustness of the article above critically, reviewing the article's design, methodology, and data issues in each section. This review critiques each section sequentially. This paper addresses strengths, weaknesses, reliability, validity, replicability, econometric techniques, and endogeneity concerns. The critique concludes with an overall opinion, summarizing key points and issuing a final verdict on the quality and robustness of the article.

3 Critique

3.1 Research Question

The Authors (Harp, Kim, and Oler, 2021) explore a research question residing in the broader literature associated with M&A acquisitions. Their research focuses on the size effect of a firm in acquisitions, determined by stock price performance, investigating the observations of more significant favourable announcement period and negative post-acquisition period returns to large acquirers. They seek to find explanations for the phenomena above but do not explicitly state their intentions as a question. The prior research on announcement period returns ((Moeller, Schlingemann, and Stulz, 2004) and (Jansen, Sanning, and Stuart, 2015)) is reputable, indicated from their publication in the Journal of Financial Economics. Other researchers cite the former article approximately 2800 times. Two research papers focusing on post-acquisition period returns are reputable given their publication in journals ((Loughran and Ritter, 2000) and (Oler, 2008)). The prior research informs a suitable research question to pursue. This article defines small acquirers as entities with a market capitalisation below the 25th percentile for all NYSE listed firms in the acquisition announcement year. They highlight other factors that may affect the acquisition success. Financing, limits to arbitrage, manager incompetency defined as 'hubris', synergistic acquisition drivers and illiquidity are some of these issues. The prior literature outlines the piece-wise nature of previous explanations. The authors' intentions to provide better reasons for the abnormal returns of small acquirers are validated. The subsequent exploration of the relationships between small acquirers and form of consideration, relative target size and diversification is appropriate.

3.2 Hypothesis Development

The authors propose four alternative hypotheses to explore their research question. We must highlight their conjecture on acquisition experience lacks evidence. Additionally, the authors do not state a null hypothesis (H_0) to find evidence against, deviating from statistical conventions. Their first hypothesis (H_1) does not link to the previous statements on surprise, experience, hubris and value destruction contributing to positive announcement period returns. There is a suggestion of fewer investors downloading 10-K reports after filings, implying a lack of focus on fundamentals (Loughran and McDonald, 2017). It is arguable analysts who cover small acquirers may receive firm fundamentals from other sources, e.g., Refinitiv Eiken - Thomas Reuters Datastream or Bloomberg. I would also assume firms on the NYSE would receive adequate coverage given the exchange's maturity. The statements about mispricing corrections are both valid and supported by research. Subsequently, H_2 investigating the negative association

between small acquirers and post-acquisition returns is appropriate. The logic surrounding abnormal trading volume and short sales limits is consistent, aligning with (H_3). Entities partner with Investment Banks to facilitate deal origination and execution. These partners have significant deal experience. There needs to be more evidence surrounding how a relative lack of experience in the selection, valuation, and execution of acquisitions contributes to lower ROA in (H_4).

3.3 Data and Data Source(s)

The selection methods and applied constraints address endogeneity concerns. The Securities Data Corporation's (SDC) U.S Mergers and Acquisitions (M&A), CRSP/Compustat, and Wharton Research Data Services databases are trustworthy sources for both reliable M&A and financial-related information. The exclusions listed in the articles; and considerations around existing ownership, deal completion, deal size and acquirer public listing status; inform a comprehensive dataset for the analysis of the proposed hypotheses. The 22,664 observations over 32 years (January 1st 1984 - December 31st 2016), derived after implementing the processes above, are sufficient for statistical analysis. Additionally, the authors' dataset extends on prior research. However, there is no granularity on the geographies of the mergers and acquisitions, which may factor into acquisition success.

3.4 Methodological Approach & Econometric Techniques

3.4.1 Matching Process

The calculation of abnormal returns follows the same matching methodology as prior research. The formation of peer group portfolios considers size, industry and book-to-market ratios. Matches enable the formation of quintiles, grouped by industry. Same size quintiles and industry based on book-to-market ratios inform the selection of the closest matches. The use of GICS (or SIC if GICS is not available) codes is an excellent way to accurately group by industry. This matching process helps mitigate endogeneity issues and control for industry fixed effects.

3.4.2 Abnormal Returns Calculation

Abnormal returns, measured by buy-and-hold returns (BHR), is calculated using a conventional methodology to other event studies. The authors subtract the BHR of an acquirer from the average BHR for the acquirer's matching peer portfolio, implementing a control portfolio approach from the matching peer group. There is a BHR for three distinct periods; announcement period (-2 to +2 surrounding announcement date), interim (+3 relative to the announcement to the consummation date, missing when no time between announcement and consummation), and post-acquisition (+1 consummation date until 24 months later). This division is thorough, with the interim period included for completeness. The authors describe the mathematical expression of BHR_{Average} correctly as $\text{BHAR}_i = \prod_{t=s}^{e}(1+R_{i,t}) - \prod_{t=s}^{e}(1+R_{mp}) = \text{BHR}_{firm} - \text{BHR}_{mp}$, calculating the cumulative buy-and-hold abnormal returns for each of the three intervals under investigation. This approach is consistent with other event studies.

3.4.3 OLS Regressions

Ordinary least squares (OLS) regressions regress abnormal returns onto small acquirer dummy variables, interactions with the small acquirer dummies, three subset variables, and other control variables. The OLS regressions make suitable adjustments for heteroscedasticity. The acquirer's information environment is proxied using analyst coverage information from IBES summary files. There are issues with this method discussed in later sections.

3.4.4 Abnormal Trading Volumes

The authors use prior research to inform how to estimate abnormal trading volumes to investigate H_3. The measure estimates an abnormal trading volume percentage based on an average trading volume from a pre-announcement period, precisely between 51 to 100 day before announcement day. The recording of abnormal trading volumes occurs across 11 days (-5 to +5 of announcement day). Their summation forms a parsimonious measure while also investigating abnormal trading volumes among the three subsets mentioned above of small acquirers. This methodology for calculating abnormal trading volumes is not as robust or rigorous as abnormal returns. It does not find averages amongst the peer groups or make

adjustments for any year fixed effects. There is no supporting explanation justifying the change in methodology either.

3.4.5 Return on Assets & Fundamental Performance

The fourth and final hypothesis investigates ROA (Net Income / Total Assets) as measuring fundamental performance at +1, +2, and +3 yearly intervals post consummation date. Abnormal ROA uses the same matching peer group methodology as abnormal returns, adjusting for industry fixed effects and endogeneity. Abnormal cash-on-cash returns provide an alternative measure of fundamental performance with Abnormal ROA three years before the consummation date used to control regressions.

3.4.6 Dummy and Control Variables

The small acquirer dummy variables, identified as the variable of interest (1 if acquirer in the 25th percentile of market capitalisation or less, 0 otherwise), is an appropriate variable of interest. Dummy variables control the size, acquisition considerations, diversification and private/public status factors. Additionally, the cash level preceding the acquisition is a variable. The insights from prior literature help include acquirer momentum, net operating assets, accruals and sales growth as variables. The logarithm of acquirer market capitalisation is a great approach to address the asymmetry in the spread of market capitalisations. Overall, the research design and variable definition are comprehensive. The matching process mitigates endogeneity as controls for all variables that vary between groups but are constant within groups by implementing various dummy variables. Accurate data sources and the inclusion of relevant variables minimise endogeneity. However, year fixed effects, e.g., the internet bubble, financial crisis etc. or regional effects, e.g., international or domestic impact, have not been controlled. The implementation of effects would improve the research design to address endogeneity further.

3.5 Research Conclusions

3.5.1 Descriptive Statistics

The authors display the dataset's descriptive statistics across four panels; the entire dataset, small acquirers, large acquirers, and univariate comparisons between small and large acquirers. Each panel displays the abnormal returns across the three periods (announcement, interim and post-acquisition), five dummy variables, pre-announcement acquirer cash level and prior consummated acquisitions. The dataset is suitable given that the summary statistics for each variable are very statistically significant (p-value of < 0.001) across all panels, except interim period announcement returns. There is no further investigation of interim period abnormal returns in the hypotheses, so this statistical significance does not matter. In summary, this dataset is appropriate for analysis.

3.5.2 Results, Findings & Evidence: No Interactions

The authors use multivariate analysis across three panels based on the announcement periods. In Panel A (announcement period), the small acquirer dummy is positive (0.017) and highly statistically significant across OLS and clustered p-values. However, only large target, public target and acquirer momentum make statistically significant contributions to abnormal returns. In panel C (post-acquisition), a small acquirer dummy makes a -0.052 contribution to abnormal returns in this period with p-values of 0.006 and 0.011 for OLS and Clustered, respectively. Additionally, stock consideration dummy, diversification dummy, acquirer momentum and acquirer NOA make statistically significant contributions to abnormal returns. In summary, there is reasonable evidence to support H_1.

3.5.3 Results, Findings & Evidence: Interactions

The introduction of interactions with stock considerations and large target dummy strengthens the argument for announcement period abnormal returns with more immense positive, statistically significant contributions to abnormal returns. The authors also find statistically significant explanatory power in the interactions between stock consideration and diversification, with a small acquirer dummy, to at least the 5% level. However, the introduction of interactions weakens either the magnitude or statistical significance of contributions by most other explanatory variables to post-acquisition abnormal returns. In summary, there is reasonable evidence to support H_2.

3.5.4 Results, Findings & Evidence: Information Environment

The authors provide statistically significant abnormal trading volume differences for small acquirers larger than large acquirers and between the panel subgroups. They also suggest the subcategories expressed in the panels experience higher abnormal returns in the announcement periods. The differences surrounding abnormal trading volumes have issues with calculating abnormal trading volumes and lack empirical analysis to find statistical evidence considering other factors (e.g., analyst coverage). Panels outlining subsets of small acquirers announcement returns, analyst coverage, logarithms of market capitalisations and announcement abnormal returns give comparisons. The use of multivariate analysis would help investigate and verify the differences associated with abnormal trading volumes. A small group of analyst could be more efficient in covering small acquirers. Further analysis would support how analyst coverage, abnormal trading volumes, and abnormal returns are related.

3.5.5 Results, Findings & Evidence: Fundamental Performance

The authors follow the same process by conducting univariate analysis for post-acquisition fundamental performance across six separate panels. There is no evidence of exploring statistical significance in panels A-E, a solid contrast to previous univariate analysis. Panel F investigates mean performance between three subgroups (small acquirer with stock consideration, large target, diversified) and small acquirers not included in the subset, essentially a control group. Every comparison is highly statistical significant comparison except two instances. There is no comparison between subgroups or combinations between subgroups. Abnormal ROA is tracked from years -3 to +4, as explained previously. The authors robustly test H_4 with multivariate analysis. This analysis is thorough as it finds statistically significant negative associations for abnormal ROA with small acquirer interaction terms with stock considerations and diversification. Most of the other variables are not statistically significant. However, without considering the interaction terms, including a moderate number of small acquirers, there is a positive correlation between abnormal ROA and small acquirers. The trends in abnormal ROA between small and large acquirers are comparable. Additionally, the authors repeated the analysis for abnormal ROA with operating cash flows scaled by assets and unadjusted ROA (or operating assets scaled by assets). Experiments related to cross border acquisitions and different definitions of diversification using Fama-French (1997) industry definition schemes (instead of 2-digit SIC codes) yield similar results, verifying robustness. However, the authors don't provide these results in the paper.

3.6 Author Issues

The authors do not explicitly raise or address issues associated with the design, methodology or data. However, they mostly follow conventions supporting empirical analysis.

3.7 Design, Methodology & Data Issues

3.7.1 Endogeneity

Previous sections outline discussions on how the methods address endogeneity.

3.7.2 Econometric

The primary econometric techniques utilised are peer-group matching processes, OLS regressions, correlation analysis including Spearman and Pearson's methods, interaction modelling and panel use. There is no discussion on the correlations analysis in this critique as the regressions explore these correlations in greater depth. Previous sections raise issues with these techniques.

3.7.3 Biases

The authors ensure reliability as they minimise researcher bias through their design, methods and data. The quantitative nature of this research does not create the need to control the level of bias experienced in more qualitative methods and experimental designs. The authors rely a lot on prior research, which may create bias in their process, preventing the exploration of other methods and may limit creativity.

4 Structure

The in-text citation style is inconsistent at the beginning of the article. One of two citation methods would be best, a full in-text citation in most instances e.g., (Harp et al., 2021) or cite the year e.g., Harp et al. (2021) in instances when explicitly mentioning authors.

5 Opinion

5.1 Compliments

The findings of this study are substantiated but not materially different from prior research. The authors pull insights from existing literature published in respected journals to inform their research. The variable of interest, the small acquirer dummy, is a suitable variable for investigating abnormal returns and abnormal ROA, providing construction validity. The accuracy of analysis and generalisability targeting small acquirers ensure both internal and external validity. The matching process to form peer groups, multivariate analysis modelling and isolation of dummy variables address endogeneity. The industry classification using SIC of GICS codes is a great way to form subsets. The announcement, interim and post-acquisition periods are well-defined. OLS regressions make adjustments for heteroscedasticity. ROA is a suitable measure of fundamental performance. The provision of alternatives validates their selection of ROA as a measure of fundamental performance. The utilization of commercial datasets ensures replicability on the NYSE, other US exchanges, e.g., Nasdaq or other Global Exchanges, e.g., FTSE.

5.2 Criticisms

The hypotheses do not follow conventions for statistical analysis, disproving a null hypothesis (H_0) favouring the alternatives. There are comments on the download history of 10-K filings being a proxy for analyzing fundamental performance. Other resources are well suited for analyzing fundamental performance. The methodology for abnormal trading volumes did not consider peer groups and was not as robust as abnormal returns or abnormal ROA. The variables don't adjust for year effects, e.g. The internet bubble, global financial crisis etc., that may affect acquisitions. Stocks trade at different frequencies 51 to 100 days before the announcement date for several reasons: exogenous events in that period specific to the stock; industry effects; and geography effects. The authors did not raise any of these concerns. The relationship with fundamental performance, abnormal trading volumes, information environment, and analyst coverage must be more robust through conducting more statistical tests and exploring multivariate methods. The assessment of abnormal ROA omits both measures to determine the statistical significance of mean performance in summary statistics and the results from alternative measures. There is no consideration of ROE in fundamental performance comparisons or explanation for the omission. The authors do not critique their analysis or identify their shortcomings. The in-text citation style is inconsistent at the beginning of the article.

5.3 Verdict

In summary, the research follows a due process of both good quality and robust nature. They contribute the findings of small acquirers, who either offer stock or diversification, generating negative post-acquisition returns and confirm previous results of the positive correlation of small acquirer status with announcement period abnormal returns. However, their findings are not a material departure from prior research. Their contributions to the relationship between the information environment, abnormal trading volumes and initial mispricing are plausible. More thorough statistical analysis using multivariate methods would strengthen these findings. Addressing the criticisms in further research would improve the robustness and quality of this research.

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