Is Cash better than Equity as Takeover Payment?
- Learning from Korean Cases -

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This paper examines the relationship between the abnormal stock returns upon announcement and the choice of takeover payment methods, say, cash or equity, for the Korean mergers and acquisitions during 1996-2008 in which for some period, say, 1996-2000, liquidity is very scarce and market is uncertain. We test two hypotheses; first, whether equity payments reduce bidders' firm value; second, whether cash payments are more (or less) likely preferred by the target shareholders who are facing high uncertainty.
Unlike US experience, we fail to find statistical evidence that equity offers reduce bidders' firm value. Further, while the bidder shareholders gain on average wealth of 1.8% from the M&A transactions, whether they pay in cash or equity, they earn positive 0.1% or 3.5% gain, respectively. These results contradict to the conventional asymmetric information model where market valuation of bidder's equity plays an important role for the determination of payment alternatives. While examining the wealth gains of target shareholders, we find statistical evidence that cash payments are preferred to equity payments. Further, if they are paid by cash (equity), they earn 6.2% (-5.1%) gain.
We conclude that under the liquidity-scarce and uncertain situation, cash is king! Sellers prefer cash rather than taking risk for future higher return. The use of buyer cash would attract more sellers. Buyers prefer equity payments not because of their equity's overvaluation (conventional model), but because of their cash saving for their lucrative takeovers.

Key words: acquisition, merger, payment methods, means of payment, cash, equity, asymmetry information model, liquidity-scarce, credit crunch

Ⅰ. Introduction

In acquisitions or mergers, one of the most important managerial decisions to make may be to determine whether to pay in cash or with equity for takeover transactions. A well-accepted tenet of corporate finance theory and empirical research based upon US cases is that the equity payments reduce the firm value of acquiring firms due to the signal to the market that the equity of bidder is over-valued (Myers and Majluf, 1984). Thus, its strategic implication is that if the present stock price is higher than its true value which is known to the managers of bidder (information

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asymmetry), it is better to pay with equity, and vice versa.

While examining the Korean mergers and acquisitions during 1996-2008, we find that the choice of payment methods does not affect statistically significantly on the bidders' firm value. In fact, whether the Korean bidders pay cash or equity, they earn positive 0.1% or 3.5% gain, respectively. If the widely held information asymmetry model or the 'signal' framework works, the choice of equity payment should show significantly negative gains for the bidders, as presented in various empirical literature for US and European cases. Unless the conventional model is appropriate for the explanation of Korean phenomena, while considering the strategic importance of the determination of payment methods in mergers and acquisitions, it seems imperative to attempt to explain formally the contradictory Korean observations.

The paper is organized as follows; the second section reviews theoretical framework and discusses previous empirical research in order to develop two hypotheses; the third section presents the methodology and sample; the forth section discusses the results; and the final section provides conclusions and discussions.

II. Background and Hypotheses

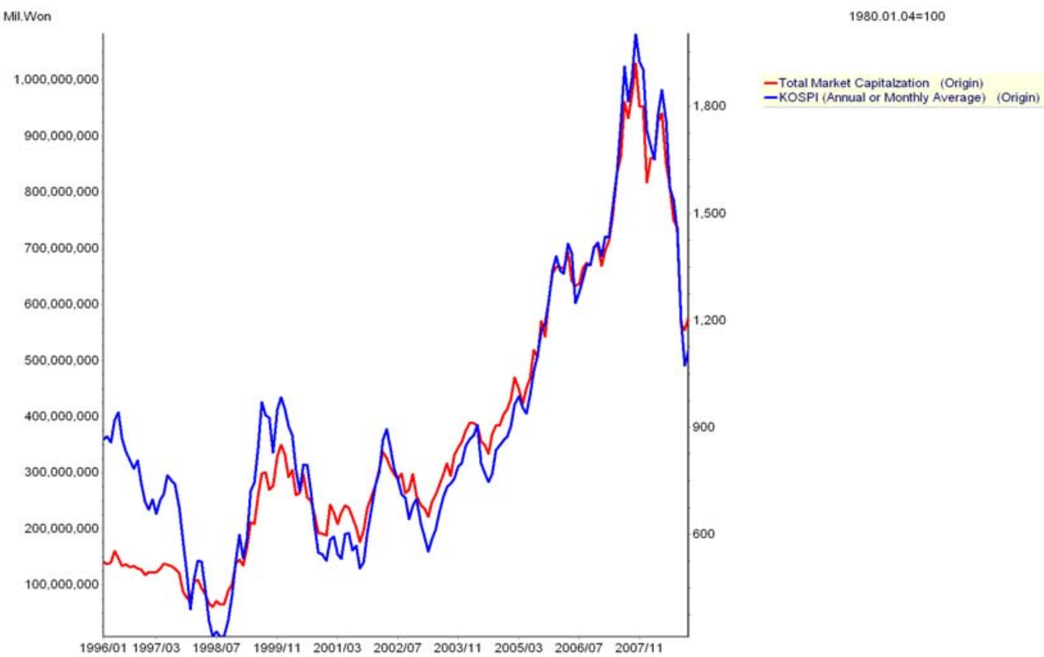
The literature identifies that type of payment (cash vs. stock) as having significant influences on the wealth outcomes of takeovers. The prevailing theoretical model for the choice of means to payment for takeovers is suggested by Myers and Majluf (1984), Hansen (1987), and Fishman (1989). It is asserted that the bidder managers are better informed about firm value than outside investors, and have an incentive to use equity of buyer when their inside information indicates that their shares are overvalued. The asymmetric information model implies that the choice of equity payment signal the fact that bidder shares are overvalued.

Inspired by the asymmetric information model, many empirical studies are attempted including Travlos (1987), Martin (1996), Faccio and Masulis (2005), and Chemmanur, Paeglis and Simmonyan (2009). Their research report evidence that the stock market recognizes this incentive, and reduces bidder's equity value at the announcement of acquisitions in which buyer equity is the means of payment. This evidence suggests that if buyers use equity for takeovers, their stock prices fall down upon the takeover announcement. If cash, the prices rise.

In the study, the first hypothesis is derived to test whether the asymmetric information model works for the Korean cases or in a unique situation where the M&A market are newly created, company liquidity is scarce, and the business environment is severely turbulent. As Cho describes (2007), the Korean M&A market are liberalized in 1998 as an effort to get over from the nationwide credit crunch. Due to the Asian financial crisis in 1997, all layers of Korean financial institutions such as commercial banks, securities companies, and capital companies fall into a liquidity trap. Accordingly, their borrowers, say, Korean manufacturing firms are forcefully and unexpectedly exposed to the severely liquidity-scarce environment. Since outside borrowing is almost impossible at that time, the only source for cash could be from its own operation or internal cash reserve. Note that the yields of Korean government bonds soar up to 17% in early 1998. Furthermore, the business environment becomes severely turbulent and uncertain. Reflecting these unfavorable factors altogether, as presented in Exhibit 1, the Korean stock market

〈Exhibit 1〉

Within the sample period of 1996-2008, the Korea Composite Stock Price Index (KOSPI) has been below 1,000 until 2005. In 1998 when the Asian financial crisis becomes prevalent, KOSPI and total market capitalization plunge down to below 300 and 100 trillion Won, respectively. It can be inferred that the Korean stock market has been depressed for at least six years since the crisis.



has been very depressed during most of the sample period. In 1998, the Korea Composite Stock Price Index (KOSPI) and total market capitalization plunge down to below 300 and 100 trillion Won, respectively.

One distinctive characteristics of this circumstance may be that everyone would prefer cash over anything else. One would dare to take any risk for uncertain future. Another may be a shift of bargaining power from sellers to bidders in takeover negotiation. While there are few fortunate firms with sufficient cash which could attempt to acquire, more firms become available as takeover targets due to temporal liquidity and operational problems. While explaining why Korean bidders gain far more than targets unlike US experience in which bidders rarely gain, Cho (2007) argues that 'for some of the lucky firms with surplus cash, it could be a once-life-time opportunity to acquire a temporally troubled but prospective target company at a cheaper price.'

The asymmetric information model implicitly assumes a normal market condition where uncertainty is normal. What would happen when market condition becomes liquidity-scarce and highly uncertain? Is the 'signal' model still workable? If the asymmetric information model works even in the credit crunching and uncertain condition, since overvalued acquirers are likely to offer equity, equity should be a negative signal of value with significance. If equity is neither negative nor significant, we would fail to accept the first hypothesis.

H 1: Bidders that are overvalued by the equity market will use stock offers and those that are undervalued will use cash offer.

In the asymmetric information model, a critical exogenous variable is the market valuation of bidder's equity. Given its market valuation, bidders make a decision; if overvalued (undervalued), they choose to pay with equity (cash). Given the bidders' decision on the choice of means of payment, for our second hypothesis, we analyze target shareholders' payoffs.

As suggested by Hansen (1987), target shareholders with favorable private information about their firm and its expected synergy from acquisition may prefer payment in acquirer's equity to capture part of the increase in value that they anticipate when future cash flows are revealed to the market. In this case, target shareholders bear post-acquisition revaluation risk while enjoying future upside from the takeover. In such situation, the use of equity as the means of payment need not be an unfavorable signal of value.

In contrast, in a cash deal, target shareholders do not incur any risk regarding the merged firm value, although they could not share future upside. Under liquidity-scarce and turbulent market condition, target shareholders may wish to be paid by cash because they become more risk averse. In such situation, the use of equity as the means of payment may be an unfavorable signal of value.

H 2A: Target shareholders experience significant wealth gains when they are paid by bidder's equity because they can share future upside from the takeover despite future risk.

H 2B: Target shareholders experience significant wealth gains when they are paid by cash because they do not incur any risk from the takeover despite the loss of future upside.

Ⅲ. Methodology and Sample

As done in the seminar literature including Travlos (1987), the wealth gains of bidder and target shareholders are estimated by means of the traditional event study methodology (Brown and Warner, 1985) applying market model parameters. Using daily returns data, the market model parameters are estimated over the period -250 to -6 trading days prior to the bid announcement day (Day 0) as reported in the Korea Securities Research Institute (KSRI) stock database. As suggested by a reviewer, an alternative to the market model for the estimation of abnormal returns (AR) is the Fama-French three factor model, which is documented as taking care of some known problems such as size effect for the cross-sectional stock data (Fama and French, 1992). Following the seminar work by Travlos (1987), however, in the paper we use the market model parameters to obtain abnormal returns upon announcement mainly because their abnormal returns are more less similar except one or two outliers and thus their interpretations are similar. Appendix 1 and 2 present the estimated coefficients for the Fama-French three factors and the abnormal returns of 38 bidding and target companies from both Fama-French Model and Market Model.

The ordinary-least-squares (OLS) coefficients of the market model regression are estimated over the period t = -250 to t = -6 relative to the date of the initial announcement (t= 0) as reported in the KSRI. Then, abnormal returns over an initial observation period, Day -5 ($T1$) to Day +5 ($T2$) (in trading days) centered on the event day are estimated. The abnormal returns from the market model are averaged each observation day and tested for statistical significance. The daily average abnormal returns (AR_t) are then cumulated to calculate the average of cumulative abnormal returns ($CAR_{T1,T2}$) which are tested for statistical significance. Specifically, daily abnormal common stock returns are calculated for each firm i over the interval t = -5 to t = +5. For a sample of 38 (N) firms, a daily average abnormal return (AR) for each day t is computed by

$$AR_t = \frac{1}{N}\sum_{i=1}^{N} [R_{it} - \hat{a}_i - \hat{b}_i R_{mt}],$$
$$t = -5, \ldots, 0, \ldots, +5, \quad (1)$$

where R_{it} is return for the common stock of firm i on day t, R_{mt} is return for the KSRI equally weighted market index on day t, and $\hat{a}_i$, $\hat{b}_i$ are OLS estimates of the market- model parameters.

Average cumulative abnormal returns ($CAR_{T1,T2}$) are derived by summing the AR_t's over the $T1$ to $T2$ interval. The expected values of AR_t and $CAR_{T1,T2}$ are zero in the absence of abnormal performance.

$$CAR_{T1,T2} = \sum_{t=T1}^{T2} AR_t \quad (2)$$

In our study, we use $CAR_{-5,+5}$ or average cumulative abnormal returns Day -5 to Day +5 (in trading days) centered on the event day. By definition, the expected value of $CAR_{5,+5}$ is zero in the normal situation. As shown in Exhibit 2, the $CAR_{5,+5}$ capture sufficiently the economic impact from the acquisition or merger event. The interval Day -1 to Day +1 seems too short and the interval Day -10 to Day +10 appears too long to capture the M&A influence in our sample.

3.1 Sample

The sample consists of takeover bids announced for Korean publicly listed companies by other Korean publicly listed companies during the years 1996 to 2008. The deals are identified in the Securities Data Company (SDC) Mergers and Acquisitions database. The sample excludes the transactions between firms in the financial industry because the interpretation and meaning of accounting data are not the same with the rest of firms. The sample companies have 250 days' share returns before a bid and 5 days' share returns after a bid for both bidder and target in the Korea Securities Research Institute (KSRI) stock database. Our sample consists of 38 mergers and acquisitions between publicly traded companies in Korea.

Table 1 presents some characteristics of bidder and target firms. The average sale of bidders or KRW 2,876 billion is more than 4 times more than that of targets or KRW 714 billion. Reflecting their temporal disturbance from the Asian crisis, the target firms show almost zero net incomes, while the bidders realize positive profits. Due to the depressed stock market, the market-to-book ratios of

〈Table 1〉 Firm Characteristics of Bidders and Targets

Bidders:

(Unit: billion KRW)

	Average	Std. Err.	Min	Max
Sales	2,876	4,038	4	15,784
Assets	2,926	3,397	18	12,518
Net Income	110	342	-146	2,005
Market Cap.	1,174	2,050	18	9,095
Book Value	931	986	10	3,539
Market-to-Book value ratio	1.26			

Targets:

(Unit: billion KRW)

	Average	Std. Err.	Min	Max
Sales	714	1,184	27	6,382
Assets	956	1,813	15	8,953
Net Income	5	88	-383	298
Market Capitalization	316	994	6	5,810
Book Value	249	404	-179	1,872
Market-to-Bookvalue ratio	1.27			

targets and bidders are close to 1.

To examine the impact of payment methods on shareholder wealth, the CARs are regressed on the payment method variable (STOCK) and on the several control variables. Separate regressions are run with CARs to target and bidder shareholders as dependent variables (Regression 1 and 2 in Table 4). Since there could be an endogeneity problem among the independent variables as a reviewer suggests,[1)] additional regressions (Regression 1′ and 2′ in Table 4) are run using two instrumental variables (Hausman 1978, Maddala, 1983); natural log of relative market value between bidder and target (LNRESIZE) and the ratio of current assets to total assets of bidder (CA/TA). The underlying rational for the LNRESIZE and CA/TA as instrumental vari-

1) To understand the choice behavior of payment methods in acquisitions, our paper analyzes the relationship between CAR and payment methods rather than examining directly the relationship between firm value and payment method. In our model, bidder managers have an option to chose either stock or cash as a means to payment for their own benefits. Their decision is mutually exclusive in a sense that if they chose stock, they can not use cash, and vice versa. Given the market valuation of bidder's equity, the managers will estimate their true value of the firm, which is known only to bidders privately. Since the true value of the bidding firm is unobservable and latent or hard to get, nonetheless, in the literature the indirect analysis of CAR and payment method is adopted despite potential endogeneity problem.

ables is that the choice of cash payment is more likely if bidder has more cash or current assets or if the target is a lot smaller in its relative size to the bidder.

3.2 Variable for Payment Method

STOCK is the method of payment offered by the bidder as consideration for the acquisition. Alternative method of payment is cash. If bidder decides to pay in cash, they can not chose to pay in equity simultaneously. Each method of payment is coded as a dichotomous variable.

If the 'signal' model works (H1) for the Korean sample, we would expect a significant negative coefficient of STOCK for bidders because market analysts would believe that the bidder's stock is overvalued if bidder managers chose equity payment method instead of cash. In our second hypothesis, if they believe that future upside is greater than future risk from the acquisition (H2A), target shareholders would prefer equity over cash. In that case, the coefficient of STOCK would be significantly positive for target firms. On the other hand, if they believe that future risk is greater than future expected return from the merged firm (H2B), we would anticipate a significant negative coefficient of STOCK. In that case, cash would be preferred than equity.

3.3 Control Variables

Control variables are used to capture the important impacts other than the variable for the choice of payment methods, say, cash or equity. As Cho (2007) maintains, a crucial aspect for shareholder value creation in the Korean acquisitions between 1996 and 2008 was operational and growth synergy. In order to control the influence from the operational and growth synergy, a proxy for operational synergy (RELATE) and a proxy for growth synergy (GAPGROW) are used as defined by Cho (2007).

The measure for the operational synergy (RELATE) is a dummy variable equal to 1 if the bidder and target operate in the same industry at the four-digit level of Standard Industrial Classification (SIC). Unrelated mergers have RELATE = 0. The measure for the growth synergy (GAPGROW) estimates the gap between bidder and target in terms of resources (i.e., current assets) and current growth rates in their business. GAPGROW value is larger when the gap between bidder and target is larger.

GAPGROW = (Bidder's current assets - Target's current assets) × (Bidder's sales growth rate - Target's sales growth rate)

As Cho (2009) suggests, in the Korean acquisitions, the ownership structure is crucial for shareholder value creation. We include 'owner-manager ownership' (TMGREQT) as a control variable, which is defined as the fraction of target shares held by executives, directors and controlling shareholders including 'specially' related shareholders.

The bid process characteristics are also controlled. 'Bidder ownership' (TOEHOLD) is the percentage of target's equity held by a bidder before a bid announcement. MULTIBID is a dummy variable equal to 1 if the target has multiple bidders in the deal process. MERGER is a dummy variable equal to 1 if the deal type is merger. Otherwise, the deal type is tender. TIME is a dummy variable equal to 1 if the transaction is announced during 1996-2000 period to control the IMF effect. Otherwise, TIME is 0. The target's market capitalization of equity a priori a bid (TGTSIZE) controls the size effect of targets. COMPLETE is a dummy variable equal to 1 if the deal is complete. Otherwise, COMPLETE is 0.

Table 2 describes the means, standard errors, and correlations of dependent and independent variables for the 38 sample. The means of CARs for bidders (a_CAR), targets (t_CAR), and market value weighted portfolio between acquirers and buyers (mvwCAR) are 1.8%, 0.6%, and 0.7%, respectively. The average of STOCK is 0.50, which indicates that a half of the sample or nineteen out of thirty eight cases use equity for their payment method. About 32 percent of the sample are mergers rather than acquisitions. 47 percent of the sample have announced their M&A transactions during 1996-2000. The average owner-manager ownership of 36.5% implies that more than one-third of shares are owned or controlled by the controlling shareholders who are actively involved in business operation and management. The average percentage of targets' equity held by bidders before a bid announcement (bidder's toehold) is 12 percent. This high toehold implies that the bidders believe that the acquisitions on hand are beneficial for themselves.

Ⅳ. Results

Table 3 presents the results for the behavior of the average daily (AR) and cumulative abnormal returns (CAR) of bidding/target firms' stocks around the initial announcement of nineteen cash/stock offers, for the period -5 to +5 days relative to the announcement day (t=0). The first column presents the event date, relative to the announcement day, in terms of trading days. The daily portfolio abnormal returns (ARs) for each event day for the bidders (targets) using cash offers are reported in the second (sixth) column. The cumulative portfolio abnormal returns (CARs) for the bidders (targets)

〈Table 2〉 Means, Standard Errors, and Correlations of Dependent and Independent Variables for the 38 samples.

	Mean[a]	Std. Err.[b]	a_CAR[c]	t_CAR[d]	mvwCAR[e]	TMGREQT[f]	RELATE[g]	GAPGROW[h]	TOEHOLD[i]	MULTIBID[j]	MERGER[k]	STOCK[l]	TIME[m]	TGTSIZE[n]	Complet[o]
a_CAR	.0176624	.012755	1												
t_CAR	.0056537	.0322744	0.2841	1											
mvwCAR	.0072426	.0160433	0.7395*	0.7294*	1										
TMGREQT	.3648553	.0343132	-0.2913	-0.1657	-0.2534	1									
RELATED	.2368421	.0698933	-0.0893	-0.0542	-0.0782	-0.0324	1								
GAPGROW	-.2119615	.1992688	0.3174	0.1543	0.2998	-0.0393	0.1160	1							
TOEHOLD	.1215500	.0327301	0.0893	0.2306	0.2658	0.5572*	0.0802	0.2913	1						
MULTIBID	.0789474	.0443313	0.1432	-0.1418	0.0467	-0.0922	0.2960	-0.0886	-0.1787	1					
MERGER	.3157895	.0764175	0.1817	-0.0594	0.0919	-0.1258	0.0210	0.0479	-0.1069	-0.1989	1				
STOCK	.5000000	.0821995	0.2205	-0.2860	-0.0028	-0.1823	0.0619	0.1359	-0.0718	0.0976	0.5661*	1			
TIME	.4736842	.0820856	0.1881	-0.2028	-0.0863	-0.1889	-0.0326	-0.1506	-0.3263*	0.1132	0.1492	0.2108	1		
TGTSIZE	.3165729	.1613269	-0.1876	-0.4011*	-0.5003*	-0.0281	0.4255*	-0.0287	-0.0829	0.1765	0.1399	0.1992	0.2284	1	
COMPLETE	.5000000	.0821995	-0.1885	-0.2681	-0.2121	0.1995	0.3095	-0.0185	-0.0298	0.2928	-0.0000	-0.0526	0.1054	0.2245	1

a Represents the means of variables.
b Represents the standard errors of variables.
c Represents cumulative abnormal returns of acquirers.
d Represents cumulative abnormal returns of targets.
e Represents market value-weighted cumulative abnormal returns of acquirers and targets.
f Represents the fraction of target shares held by the managers and controlling shareholders of the bidding firm.
g Represents the measure for operational synergy and equals 1 if both bidder and target are in the same 4-digit SIC (see Cho, 2007 for detail).
h Represents the measure for growth synergy (see Cho, 2007 for detail).
i Represents bidder's toehold or the percentage of target's equity held by a bidder before a bid announcement.

j Equals 1 if there are multiple bidders in the deal process.
k Equals 1 if the transaction is merger instead of tender.
l Equals 1 if the transaction is paid by Equity instead of Cash.
m Equals 1 if the bid is announced during 1996-2000.
n Represents the target's market capitalization of equity a priori a bid.
o Equals 1 if the bid is completed.
* Significant at the $p < 0.05$ level

using cash offers are contained in the third (seventh) column. The fourth (eighth) column exhibits ARs for the bidders (targets) using stock exchange offers. The fifth (ninth) column includes the CARs for the bidders (targets) using stock exchange offers. When bidders pay in cash (stock) for their transactions, the $CAR_{5,+5}$ for bidders is 0.06% (3.48%) and the $CAR_{5,+5}$ for targets is 6.18% (-5.05%), respectively.

The cumulative abnormal returns (CARs) are graphically presented in Exhibit 2 over the period Day -5 to Day +5 around the event day. Over the period, bidder shareholders earn a CAR of 1.8% whereas target shareholders earn 0.6%, both significant at 1 % (Table 2). The market value weighted CAR to the portfolio of bidders and targets is 0.7% (significant at 1%). Thus, Korean mergers and acquisitions create positive value overall. Unlike US experience in which targets gain and bidders do not, however, Korean bidders gain about three time more than Korean targets. This result is consistent with Cho's finding (2007). As Cho claims, it can be interpret as bidders having underpaid for

〈Table 3〉

Daily Average Abnormal Returns (AR) and Cumulative Abnormal Returns (CAR) for the Sample of Nineteen Bidding and Target Firms in Cash Offers and Nineteen Bidding and Target Firms in Common Stock Exchange Offers, from Five Days before and Five Days after the Initial Announcement (Day Zero) of a Takeover Bid. When bidders pay in cash (stock) for their transactions, the $CAR_{5,+5}$ for bidders is 0.06% (3.48%) and the $CAR_{5,+5}$ for targets is 6.18% (-5.05%), respectively.

Year 1996 through 2008								
Event Day	Bidders (n=38)				Targets (n=38)			
	Cash Offer (n=19)		Stock Offer (n=19)		Cash Offer (n=19)		Stock Offer (n=19)	
	AR%	CAR%	AR%	CAR%	AR%	CAR%	AR%	CAR%
-5	-0.27	-0.27	1.52	1.52	-2.32	-2.32	0.06	0.06
-4	1.32	1.05	0.36	1.88	0.20	-2.11	0.15	0.21
-3	-0.21	0.84	1.36	3.24	1.70	-0.41	-0.53	-0.32
-2	0.01	0.85	0.92	4.16	2.11	1.70	0.40	0.08
-1	-0.17	0.68	1.70	5.86	1.58	3.27	0.65	0.73
0	0.27	0.96	-0.48	5.38	3.83	7.11	-0.36	0.37
1	0.60	1.55	0.26	5.65	0.29	7.39	-1.20	-0.83
2	-0.93	0.63	-1.30	4.34	0.59	7.98	-1.77	-2.61
3	-0.20	0.43	0.07	4.42	-1.71	6.27	-1.19	-3.79
4	0.15	0.58	-0.94	3.48	0.98	7.25	-0.93	-4.73
5	-0.53	0.06	0.00	3.48	-1.07	6.18	-0.32	-5.05

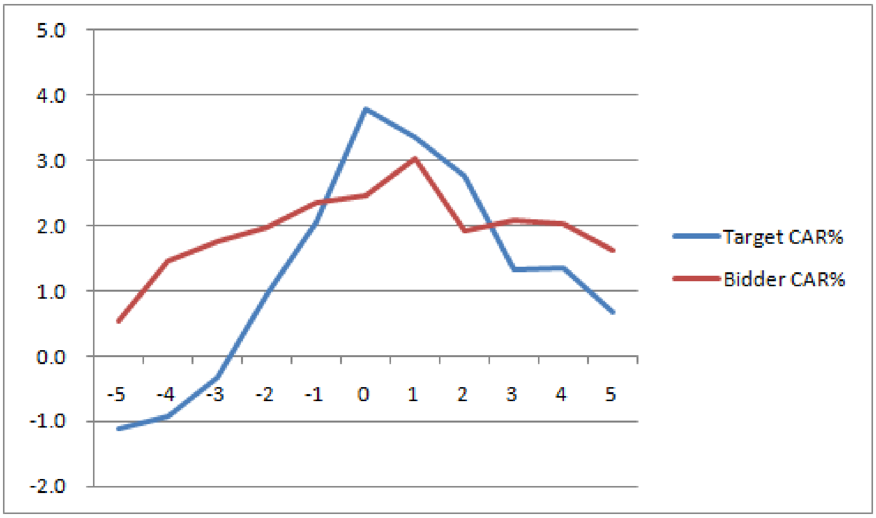
their acquisitions. In that case, we may infer that there is a wealth transfer from target to bidder shareholders when the market condition is liquidity-scarce and uncertain.

4.1 The Effect of Payment Method on the Bidder and Target Shareholder Returns

Table 4 presents the results of the regression of bidder and target wealth gains on the explanatory and control variables. Both Bidder model (1) and Target model (2) show that our payment method and control variables have significant explanatory power. While Bidder model (1) has an adjusted R^2 of 0.2326 with p-value of F statistic being 0.0586, Target model (2) shows an adjusted R^2 of 0.2350 with p-value of F statistic being 0.0570. To fix potential endogenous problem, if any, the instrumental variables of LNRESIZE and CA/TA are used as discussed in the methodology section, and the results are presented as Bidder model (1′) and Target model (2′) in Table 4. As shown in Regression 1′ and 2′ in Table 4 using the LNRESIZE and CA/TA, the endogeneity concern does not

〈Exhibit 2〉

The Line Chart of Cumulative Abnormal Returns (CAR) for the Sample of Thirty-Eight Bidding and Target Firms, respectively, from Five Days before and Five Days after the Initial Announcement (Day Zero) of a Takeover Bid. Around the Initial Announcement (Day Zero), both CAR graphs show their highest peak. Because the expected values of $CAR_{T1,T2}$ are zero in the absence of abnormal performance, the significantly positive CAR values imply that there exist abnormal performance around the event day. Y-axis represents the Percentages of Cumulative Abnormal Returns at Day t (t=-5 to t=5) around the event day (t=o).



〈Table 4〉

Estimated Coefficients and t-Statistics (in Parentheses) from Regressing the Five-Day (t= -5 to t =0) Average Cumulative Abnormal Returns for Bidding Firms (1) and Target Firms (2) at the Announcement of Takeover Bids on the Payment Method (STOCK), % Equity of Owner-Managers (TMGREQT), Operating Synergy (RELATED), Growth Synergy (GAPGROW), Bidder's Toehold (TOEHOLD), Multiple Bidders (MULTIBID), Acquisition Type (MERGER), IMF Period (TIME), Market Value of Target (TGTSIZE) and Deal Completion (COMPLETE)

Variable	Bidder (Regression 1)	Bidder (Regression 1′)	Target (Regression 2)	Target (Regression 2′)
STOCK	-0.0063816 (0.0295199)	-0.0024441 (0.0249162)	-0.1649162** (0.0745811)	-0.1672696*** (0.063434)
TMGREQT	-0.1357133* (0.0708761)	-0.1489227*** (0.0576106)	-0.3817781** (0.1790663)	-0.3778501** (0.1513599)
RELATED	-0.0207918 (0.0320173)	-0.0252322 (0.0267579)	0.0430406 (0.0808908)	0.0466078 (0.069404)
GAPGROW	0.0168344 (0.010182)	0.0156024* (0.0084794)	0.0078347 (0.0257246)	0.0082715 (0.0217328)
TOEHOLD	0.1468522* (0.0776564)	0.1347508** (0.0639834)	0.4044667** (0.1961966)	0.4103557*** (0.166565)
MULTIBID	0.0971675* (0.0491812)	0.0862595** (0.0413552)	0.0475339 (0.1242548)	0.0523741 (0.1061452)
MERGER	0.0411544 (0.0314463)	0.0951648* (0.0560559)	0.0955807 (0.0794483)	0.0712426 (0.112454)
TIME	0.0433293* (0.0249724)	0.0324813* (0.0223308)	0.0029759 (0.0630921)	0.005334 (0.0539142)
TGTSIZE	-0.0180212 (0.0133277)	-0.0212612* (0.011309)	-0.0680458** (0.033672)	-0.0669627** (0.0286286)
COMPLETE	-0.022278 (0.0258177)	-0.0193282 (0.0214764)	-0.0661569 (0.0652277)	-0.0680033 (0.0553501)
Constant	0.036664 (0.0311376)	0.0302706 (0.0276524)	0.1889836 (0.0786682)	0.194026 (0.0689569)
R^2 Adjusted R^2	0.4400 0.2326		0.4417 0.2350	
F (Wald chi^2) N	2.12 38	31.70 38	2.14 38	30.15 38
Probability>F(chi2)	0.0586	0.0004	0.0570	0.0008

* Significant at the 10% level, two tailed test.
** Significant at the 5% level, two tailed test.
*** Significant at the 1% level, two tailed test.

appear a significant problem in our sample. Since their regression results are not significantly different from those of OLS, therefore, we will discuss further in the rest of paper on the basis of Regression 1 and 2.

To check the multicollinearity among the variables for the two Models, the values of Variance Inflation Factor (VIF) are calculated as shown in Table 5. Since the independent variables are the same in the two Models, their values of VIF are identical. The values are less than 3, and thus there is no problem using these variables in regressions.

As presented in Table 4, in Bidder model (1), equity payment method (STOCK) is not statistically significant. The statistical insignificance may suggest that the conventional model does not work for the Korean sample during 1996-2008. If bidder managers make a decision on the payment method solely on the basis of market valuation of bidder's equity, the coefficient of STOCK should be significant and negative. From this result, we cannot accept our first hypothesis (H1). Then, how could we explain the Korean observations?

To analyze further, we calculate the average CARs of bidders when they pay cash or equity, respectively. While Korean bider's shareholders experience 1.8% wealth gains (Table 2), as shown in Table 6, if they pay in cash, they earn 0.1% gain. If they pay in equity, their gain is 3.5%. Bidders would be four

〈Table 5〉

The values of Variance Inflation Factor (VIF) for the Independent Variables. The values are less than 3, and there is no problem of multicollinearity among the variables in the regressions.

	VIF	1/VIF
TOEHOLD	1.91	0.522293
STOCK	1.75	0.573053
TMGREQT	1.75	0.570481
MERGER	1.71	0.584301
RELATED	1.48	0.673784
MULTIBID	1.41	0.709814
TGTSIZE	1.37	0.729862
COMPLETE	1.33	0.749184
TIME	1.25	0.802986
GAPGROW	1.22	0.819628
Mean VIF	1.52	

times better off if they pay by equity than cash. These results appear to contradict to the conventional model. Since the Asian financial crisis in 1997, as presented in Exhibit 1, the Korean stock market has been deeply depressed; the KOSPI has been below 1,000 until 2005. Furthermore, the average market-to-book ratio of bidders is only 1.2 (Table 1). According to the conventional model, bidders should have paid in cash when their equity is undervalued.

Then, why would equity payments create more value than cash payments as experienced in the Korean mergers and acquisitions during 1996-2008? One hypothetical explanation could be that while cash is king when the liquidity is scarce and market is uncertain, say, 1997-2000, if they can pay in equity, bidders could save their current cash reserve for other important purposes. As Cho (2007) asserts, another hypothetical explanation could be that under the credit crunching and uncertain condition, bidders could have a golden opportunity to acquire temporally troubled target at a cheaper price (growth synergy) because there are many targets available and less qualified bidders (more bargaining power). Partly because of wealth transfer from target to bidder shareholders and partly because of cheaper price, the successful bidders could earn big wealth gains from acquisitions. If their wealth gains are big enough, whether they chose cash or equity as a payment method, the bidder shareholders would make positive wealth gain anyway.

On the other hand, in Target model (2), STOCK is significant at the 5 % level as presented in Table 4. The significant negative coefficient of STOCK in Target model (2) may suggest that target shareholders gain when they are paid by cash. It indicates that H2B is acceptable and that target managers would prefer to be paid by cash because they do not incur any future risk from acquisition despite the loss of future upside. Cash is king when it is uncertain.

In Table 6, the wealth gains of target shareholders are presented. If they are paid by

〈Table 6〉

Average Cumulative Abnormal Returns of Bidders, Targets and Value-Weighted Portfolio with respect to Equity, Cash, Both Payments

	Bidders (n=38)	Targets (n=38)	Combined CARs (n=38)
Equity Payments	3.5%	-5.1%	0.7%
Cash Payments	0.1%	6.2%	0.8%
Both Payments	1.8%	0.6%	0.7%

〈Table 7〉

Estimated Coefficients and t-Statistics (in Parentheses) from Regressing the Five-Day (t= -5 to t =0) Average Cumulative Abnormal Returns for Value-Weighted Portfolio of Bidders and Targets at the Announcement of Takeover Bids on the Payment Method (STOCK), % Equity of Owner-Managers (TMGREQT), Operating Synergy (RELATED), Growth Synergy (GAPGROW), Bidder's Toehold (TOEHOLD), Multiple Bidders (MULTIBID), Acquisition Type (MERGER), IMF Period (TIME), Market Value of Target (TGTSIZE) and Deal Completion (COMPLETE)

Variables	Model
STOCK	-0.0404614 (0.0296439)
TMGREQT	-0.2377837*** (0.0711738)
RELATED	0.0042049 (0.0321519)
GAPGROW	0.0123299 (0.0102248)
TOEHOLD	0.2782463*** (0.0779827)
MULTIBID	0.1080036** (0.0493878)
MERGER	0.0659731** (0.0315785)
TIME	0.0236229 (0.0250773)
TGTSIZE	-0.0531277*** (0.0133837)
Complete	-0.0170977 (0.0259262)
Constant	0.0668443 (0.0312684)
R^2 Adj R^2	0.6431 0.5109
F N	4.86 38
Probability>F	0.0005

* Significant at the 10% level, two tailed test.
** Significant at the 5% level, two tailed test.
*** Significant at the 1% level, two tailed test.

cash, target shareholders earn 6.2% gain. If they are paid in equity, their gain is negative 5.1%. It appears evident that for target shareholders cash payments are preferred to equity payments. Further, we examine the wealth gains of market value-weighted portfolio for both dodders and targets. Combined wealth gains are 0.8% for cash deals while those for equity are 0.7% (Table 6).

In Bidder model (1) in Table 4, TMGREQT, TOEHOLD, MULTIBID, and TIME are significant at 10%. In Target model (2), TMGREQT, TOEHOLD, and TGTSIZE are significant at 5%. The negatively significant coefficient of TMGREQT may imply that there exists management entrenchment (Shleifer and Vishny, 1986; Cho, 2009). The positively significant impact of TOEHOLD may imply that a bidder's action before a bid to buy some target shares would signal that the deal is excellent because the bidder may want to buy more toeholds when shares are cheaper before the bid. The negative coefficient of TGTSIZE may suggest that there is a size effect; the smaller the target is, the greater the wealth gains to target shareholders.

4.2 The Effect of Payment Method on the Combined Value-Weighted Portfolio Returns

The regression model for the market value-weighted portfolio returns of bidders and targets in Table 7 is significant at 1% with an adjusted R^2 of 51.09%. The use of equity for payment (STOCK) is not significant at the 10% level. The coefficient of STOCK is negative. The results show the similar interpretation that we cannot accept our first hypothesis (H1) and that cash is preferred for both sellers and buyers together.

Ⅴ. Conclusions

This paper attempts to understand under the liquidity-scarce and uncertain environment where many of Korean M&A transactions reside, which means of payments is favorable. Following the previous empirical literature, we examine the relationship between the abnormal stock returns upon announcement and the choice of payment methods.

In our study, there are two research questions. The first objective of the study is to test whether the prevalent asymmetric information model is applicable into the Korean situation. Our results suggest that the conventional model is not appropriate for explaining the Korean experience during 1996-2008. According to the conventional model, the bidder shareholders should have chosen to pay in cash because their stock prices are most likely to be undervalued due to the depressed Korean stock market at that time. However, we find no statistical evidence for this argument. Further, we observe that if they pay in equity, bidder shareholders earn 3.5% wealth gain, which is four times more than when they pay in cash (0.1%). Alternative explanation for the results would be that bidder managers choose to pay with equity not because their equity is overvalued as asserted by the conventional model, but because they could save big cash for the takeover, while acquiring temporally troubled target at a cheaper price. The second objective of the study is to examine whether target managers would prefer to be paid by cash or equity in the liquidity-scarce and uncertain environment. Our results indicate that they would like to be paid by cash because they do not need to bear any future risk such as post-merger integration although they should give up future upside. Thus, the use of buyer cash would attract more the sellers.

In sum, we conclude that under the liquidity-scarce and uncertain situation, cash is king! Sellers prefer cash rather than taking risk for possible higher return. Buyers prefer equity payments not because of its equity's overvaluation, but because of cash saving for their 'lucrative' acquisitions.

There are at least two avenues of future study. First, we may try to study directly the relationship between the choice of medium of exchange and bidder's equity over- or under-valuation. In our study, we rely on indirect inferences by examining the abnormal stock returns upon announcement using cash or stock. The intrinsic value could be calculated by the residual income model as proposed by Ohlson (1990). Second, it may be worthwhile to study the Korean mergers and acquisitions under normal condition. In our study, we assume that the market condition is liquidity-scarce and uncertain. In normal condition, it seems interesting to see whether the prevailing asymmetry information model works in Korea as well like US experience.

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〈Appendix 1〉

Abnormal Returns (AR) of 38 Bidding Companies from Fama-French Three Factor Model and Market Model. The coefficients of Fama-French three factors (column 4, 5, and 6) are estimated over Day -250 to Day -6 around announcement day by the OLS regression of daily returns on the size. book-to-market, and market index. The averages of Abnormal Returns (AR) of 38 Bidding Companies from Fama-French Three Factor Model and Market Model are listed in column 7 and 8.

No	Bidder name	Inter -cept	Fama-French Coefficients			Abnormal Returns	
			Size	BM	Mkt	FF Model	MKT M.
1	Inchon Iron & Steel	-0.001	0.710	0.657	1.316	0.007	0.004
2	LG Electronics Inc	0.001	0.013	0.092	1.281	-0.003	-0.003
3	Doosan Corp	0.000	0.059	-0.059	0.593	-0.004	-0.002
4	Doosan Construction	-0.001	0.971	1.552	1.457	0.000	0.000
5	Honam Petrochemical Corp	0.001	0.180	-0.722	0.967	0.011	0.011
6	NexScien Co Ltd	-0.001	0.807	-0.344	0.361	0.006	0.001
7	Daesung Industrial Corp	0.000	0.522	-0.384	0.887	0.000	0.000
8	Doosan Beverage(Doosan Group)	0.000	0.251	-0.019	0.262	0.000	0.000
9	Dongbu Chemical Co Ltd	-0.001	0.773	-0.327	1.315	0.008	0.007
10	Korea Tungsten(Keo Pyung Grp)	0.001	1.577	0.510	0.927	0.018	0.012
11	Kohap Ltd	-0.002	0.828	1.093	0.854	0.004	0.005
12	Oriental Brewery Co Ltd	0.001	1.100	-0.720	1.185	-0.004	-0.002
13	Kumho Construction & Engineer	0.001	1.517	0.018	1.068	-0.006	0.006
14	Sungshin Cement Mfg	-0.001	1.287	0.242	1.024	0.024	0.023
15	Hyundai Electionics	0.001	-0.452	-0.589	0.382	-0.012	-0.012
16	Hyundai Mobis	0.000	-0.058	-0.180	0.961	0.001	0.002
17	Kolon	0.001	0.694	0.404	1.727	0.008	0.009
18	LG Chem. Ltd	0.002	0.034	-0.079	0.986	-0.005	-0.004
19	Heung Ah Tire & Rubber Co Ltd	-0.001	0.665	0.090	0.781	0.000	-0.002
20	LG Group	0.002	-0.411	0.024	1.011	0.001	0.005
21	Inchon Iron & Steel	-0.003	0.385	0.463	0.989	-0.006	-0.002
22	Kumho Petrochemical Co Ltd	-0.002	0.490	0.135	0.884	0.010	0.008
23	Daesung Industrial Corp	0.000	0.708	0.878	0.650	-0.007	-0.007
24	Daou Technology Inc	0.000	1.730	-0.060	1.429	0.002	0.000
25	Samick Musical Instr Mfg Co	0.000	1.261	0.386	0.890	0.002	0.006
26	Cheil Jedang Corp	0.001	0.235	0.119	0.724	0.000	0.001
27	Hyosung Corp	-0.002	0.094	0.291	1.099	0.002	0.002
28	Dae-A Construction Co Ltd	0.000	0.431	0.490	0.650	0.002	0.002
29	Hyundai Motor Co Ltd	0.001	-0.586	0.463	1.083	0.020	0.016
30	EXA E&C Inc	0.003	1.259	0.299	0.553	-0.010	-0.009
31	AmorePacific Corp	0.001	-0.235	0.192	0.651	0.004	0.004
32	DC Chemical	-0.001	0.604	0.371	1.113	-0.005	-0.002
33	Hyundai Motor Co Ltd	-0.001	-0.595	0.227	0.864	-0.010	-0.010
34	FnC Kolon	0.002	-0.036	0.464	1.188	-0.006	-0.007
35	Deco Co Ltd	-0.001	0.808	1.040	0.643	0.014	0.005
36	SK Networks Co Ltd	-0.002	-0.106	0.391	1.238	0.004	0.002
37	Hyosung Corp	0.001	0.483	-0.137	1.249	0.003	0.001
38	Taihan Electric Wire Co Ltd	0.002	0.334	-1.108	1.333	-0.005	-0.009

〈Appendix 2〉

Abnormal Returns (AR) of 38 Target Companies from Fama-French Three Factor Model and Market Model. The coefficients of Fama-French three factors (column 4, 5, and 6) are estimated over Day -250 to Day -6 around announcement day by the OLS regression of daily returns on the size. book-to-market, and market index. The averages of Abnormal Returns (AR) of 38 Target Companies from Fama-French Three Factor Model and Market Model are listed in column 7 and 8.

No	Target name	Inter -cept	Fama-French Coefficients			Abnormal Returns	
			Size	BM	Mkt	FF Model	MKT M.
1	Kangwon Industrial Co Ltd	0.000	1.756	-0.211	1.245	-0.003	-0.004
2	LG Information & Communication	0.004	-0.227	-0.442	1.103	-0.046	-0.044
3	Doosan Techpak Co Ltd	-0.001	0.536	0.455	0.814	-0.008	-0.007
4	Korea Industrial Dvlp Co Ltd	0.000	0.672	0.150	0.849	-0.003	-0.003
5	KP Chemical Corp	0.005	1.440	0.021	1.657	-0.006	-0.010
6	Hanol Co Ltd	-0.001	1.151	0.992	1.094	-0.001	0.002
7	Daesung Resources	0.004	1.902	-0.311	1.279	-0.001	0.001
8	Doosan Foods Co	0.001	1.802	0.641	0.749	-0.021	-0.020
9	Dongbu Hannong Chemical Co Ltd	-0.001	1.054	0.600	1.030	-0.001	-0.005
10	Keo Pyung	-0.002	1.383	0.351	0.653	0.017	0.011
11	Kohap Inc	-0.004	1.475	1.312	0.885	0.011	0.012
12	Doosan Beverage(Doosan Group)	0.001	1.348	0.273	1.201	-0.015	-0.015
13	Kumho Tire Co Ltd	0.003	1.312	0.092	1.144	-0.003	0.008
14	Jinsung Remicon	-0.001	1.905	0.773	1.205	0.001	0.002
15	LG semiconductor	-0.002	0.228	0.017	0.853	-0.017	-0.017
16	KASCO	0.002	0.226	0.011	1.121	0.105	-0.006
17	Kolon chemical	0.000	-0.069	-0.093	0.982	0.005	0.005
18	LG Petrochemical	0.002	-0.032	0.334	0.721	0.004	0.002
19	Woosung Tire Corp	0.005	1.174	0.154	0.899	0.006	0.004
20	Dacom Corp	0.004	-0.349	0.192	0.612	0.026	0.028
21	Sammi Steel Co Ltd	-0.002	0.766	0.235	0.866	-0.011	-0.005
22	Kumho Chem Ind Co Ltd	-0.002	0.527	0.164	1.038	0.012	0.010
23	Taegu City Gas Co Ltd	0.001	0.342	0.511	0.238	-0.005	-0.004
24	Incube Technologies Inc	-0.004	1.187	0.002	0.894	0.009	0.008
25	Young Chang Akki Co Ltd	-0.002	1.452	0.894	1.270	0.008	0.013
26	Hanil Pharma Inds Co Ltd	0.001	0.340	-0.053	0.423	-0.014	-0.013
27	Capro Corp	0.003	0.325	-0.859	-0.377	0.035	0.035
28	Keang Nam Enterprises Ltd	-0.005	1.318	1.473	1.119	0.039	0.037
29	Kia Motors Corp(Kia Group)	-0.002	0.675	-0.607	0.462	-0.003	0.003
30	Tellord Investment	0.001	2.192	-0.267	1.044	-0.029	-0.028
31	Pacificglas Inc	0.000	-0.023	0.120	0.569	0.002	0.002
32	OCI	0.002	0.420	0.514	0.747	-0.039	-0.035
33	Inchon steel	-0.001	0.701	0.628	1.336	0.012	0.007
34	Cambrige	0.001	0.565	0.227	0.709	0.007	0.010
35	Netishion.com Co Ltd	-0.003	0.478	0.067	0.331	0.001	-0.001
36	Obzee Co Ltd	0.000	0.138	0.322	0.423	0.004	0.003
37	Chin Hung International Inc	-0.001	1.419	1.003	1.977	0.048	0.048
38	Aldex Co Ltd	0.001	0.671	1.181	1.014	-0.021	-0.018

한국의 인수합병에 있어서 현금 대금 지급이 주식 대금 지급보다 유리한가?

조성호*

요 약

본 연구는 1997년 IMF 위기로 인한 유동성 경색과 시장 불확실성이 만연한 시기가 포함된 1996년부터 2008년까지 기간 동안 한국의 기업인수합병에 있어서 현금으로 인수대금을 지급하는 경우와 인수회사의 주식으로 인수대금을 지급하는 경우를 (피)인수기업 주주들의 부(富) 창출(wealth gain)과 연계하여 통계적으로 비교 분석한다. 본 연구에서는 두 가지의 가설을 검증한다. 첫째, 주식으로 인수대금을 지급하면, (주가가 과대평가 되어 있다는 신호이므로) 인수회사의 기업가치가 하락하는가? 둘째, 불확실성이 만연한 상황에 직면한 피인수기업 주주들의 입장에서, 현금 (또는 주식)으로 인수대금을 지급 받는 것을 선호 할 것인가?

주식으로 인수대금을 지급하는 경우, 주가 과대평가의 신호이므로 인수회사의 기업가치가 하락한다는 미국의 경험에 기초한 기존 실증적 연구 결과를 본 연구에서는 유효 범위 내에서 인정(accept) 할 수 없다는 통계적 결과를 얻었다. 또한, 인수기업의 주주들이 기업인수합병을 통해 평균 1.8%의 부(wealth gain)를 창출하였는데, 현금(주식)으로 인수대금을 지급한 경우 0.1% (3.5%)의 부(wealth gain)를 창출하였다. 이러한 분석결과를 볼 때, 인수회사의 주가가 과대(소)평가 되었는지가 대금 지급 방법에 관한 전략적 결정에 중요한 역할을 하는 기존의 'signal'모델은 적절하게 한국의 사례를 설명할 수 없다고 사료된다. 또한, 피 인수기업 주주들의 부(富) 창출과 연계하여 분석한 결과, 현금으로 인수대금을 지급 받는 경우 부(wealth gain) 창출이 최대화 된다는 통계적 결과를 얻었다. 피 인수기업의 주주들이, 현금(주식)으로 인수대금을 지급받은 경우 6.2% (-5.1%)의 부(富)를 창출하였다.

본 연구를 통해 유동성 경색과 불학실성이 만연한 상황에서는 현금이 최고이므로 매각회사는 미래 위험부담을 갖는 주식보다는 현금을 인수대금으로 선호하는 것이라고 추론할 수 있다. 따라서 현금으로 인수대금을 제시하면 인수기업은 더 매력적으로 느낄 것이다. 한편, 인수기업 입장에서 볼 때, 유동성 경색과 불확실성으로 주가가 과소평가 되어 있기 때문에 현금으로 인수대금을 지급하여야 하겠지만 (기존이론), 귀중한 현금을 매수대금으로 쓰지 않고 혹시 발생할 수 있는 위급상황에 대비하여 현금을 보존할 수 있기 때문에 주식으로 인수대금을 지급하는 방안을 더 선호할 수도 있다.

주제어: 기업 인수합병, 인수대금 지급방법, 현금지급, 주식지급, signalling model, asymmetry Information model, 유동성 경색 (credit crunch), 부(富) 창출(wealth gain)

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