

Motivations of Public to Private Transactions

Evidence from the United Kingdom

Yi Xue

Cardiff University
Cardiff, UK

Junyu Su

School of International Education
Guangxi University of Finance and Economics
Nanning, China

Abstract—In recent years, the speed of firms going private in the UK has slowed down. This paper examines whether undervaluation, hostile takeover and lower growth prospects will affect the public to private transaction based on the uncertain economic environment after financial crisis. It supports the management undervaluation and short term actual undervaluation hypothesis by analyzing the data of United Kingdom from 2009 to 2017.

Keywords: *private transaction, undervaluation, growth prospects*

I. INTRODUCTION

The public to private transactions peaked around 1999 in the UK. In particular, the numbers of transactions in UK reached about 116 from 1998 to 2000. According to previous study, there are considerable reasons for firms to transfer public to private including takeover defense, corporate undervaluation and lower growth prospects. In terms of PTP transaction, it has played an important role in the development of target firms. On the one hand, it enables managers to save more time to focus on accumulation of shareholders wealth in the long term. On the other hand, firms going private do not need to bear the uncertainty of stock price. Based on the previous research, this paper will take 104 firms as examples to analyze the financial characteristics, mechanism and reasons of PTP transactions in the UK from 2009 to 2017.

II. LITERATURE REVIEW

A. Previous studies on undervaluation

The stock price is undervalued relative to the firm's actual potential performance for the reason of information asymmetry. It is a general problem in small firms: it is hard to attract institutions and fund managers' attention. In addition, managers have more information about the firm than the public. If the management considers that the market does not reflect the intrinsic value of the firm correctly, it may stimulate privatization transactions. Weir et al. (2005) believe the management undervaluation have significant impact on PTP transaction by analyzing firms from UK during 1998 to 2000. Sannajust (2010) further study about

Europe, North America and Asia regions and generates same conclusion.

Furthermore, the stock price of small and medium-sized firms influenced by the financial crisis significantly, which brings higher costs for the firms to remain public. Based on the samples of small and medium-sized firms whose turnover is less than 60 million pounds, the null hypothesis is:

H1: One of the reasons that motivate firms go private is undervaluation.

B. Previous studies on prevent hostile takeover

Hostile takeover will not only increase the decision-making cost of the firm, but also have negative impact on the management's control power. Lowenstein (1985) believes that when the public firm faces the risk of hostile takeover, privatization is an effective measure for the management to maintain the control power. Lehn and Poulsen (1989) using the data from US in 1990s give further explanation that a significant motivation to go private is to prevent hostile takeover. However, Sannajust (2010) does not find the connection between hostile takeover and PTP transactions in the United States from 2000 to 2007. Weir et al. (2005) show the same result when analyze the data of UK from 1998 to 2000.

The prevention of hostile takeover has different impact on PTP transactions in different countries and different periods. Therefore, the null hypothesis is:

H2: One of the reasons that motivate firms go private is to prevent hostile takeover.

C. Previous studies on lower growth prospect

Growth prospect is an important indicator to estimate firms' performance. Jensen (1986) argues that firms with lower growth prospects have poor decision-making ability and these firms have lower probability to remain public. Renneboog et al. (2007) measures the firms' growth prospects by Tobin's Q ratio, which confirms that the PTP firm's growth prospects are not optimistic. Weir et al. (2005) and Sannajust (2010) conclude the same result when measure the growth prospects by using the percentage changes of sales.

Moreover, sales and profitability of manufacturing and retail industry may be affected greatly by the financial crisis. Therefore, the null hypothesis is:

H3: One of the reasons that motivate firms go private is lower growth prospects.

III. METHODOLOGY

According to the dichotomous characteristic of dependent variables, logistic regression is used as empirical method in this case.

$Z_i = \ln(P_i / (1 - P_i))$, P_i is the probability that firms will take an action of PTP transaction. If Z_i equals to 1, firms may experience PTP transaction. If the value of Z_i equals to 0, it represent firms remain public. The logistic model that includes n independent variables can be expressed as follows:

$\ln(P_i / (1 - P_i)) = Z_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_n X_{in}$, Based on the different time period, the model can be written as

$$Z_i = \beta_0 + \beta_1 M1 + \beta_2 E1 + \beta_3 \text{Prospects} + \beta_4 \text{Hostile}$$

$$Z_i = \beta_0 + \beta_1 M2 + \beta_2 E2 + \beta_3 \text{Prospects} + \beta_4 \text{Hostile}$$

This paper measures undervaluation from two different aspects. M represents management undervaluation, where $M1$ can be defined as market capitalization (T-1)/ market capitalization (T-2) and T represents the year firms going private. $M2$ can be defined as market capitalization (T-1)/ market capitalization (T-3). E represents firm's actual undervaluation. Time period calculation of $E1$ and $E2$ are same like $M1$ and $M2$. Prospects is four year average percentage change in sales. In addition, Hostile means a dummy variable. If the value equal to 1, it represents the firm experience hostile takeover.

IV. DATA

The initial data of this paper comes from Bloomberg, Datastream and Companies house. It includes the complete accounting data in five years before and after PTP transaction. At the same time, firms that experience public-private-public process should be excluded. According to this standard, there are 54 firms and 7 of them have partial missing data and missing parts are obtained from Companies house.

Furthermore, the data of the privatization firms come from the year before the firm officially announces its privatization. Therefore, the matching firms should select the data in the same year. In other words, if it is hard to obtain the matching firm's five continuous years' data, it cannot be regarded as the matching firm. Finally, 50 matched samples are obtained.

V. EMPIRICAL RESULTS

"Table I" shows the overview characteristics of samples. It is obvious that the difference between the change of the management undervaluation and the actual undervaluation is small in the same time period. However, both management undervaluation and the actual undervaluation show

considerable increment changes in the long run. In addition, the mean value of Prospects means that firms' four year average sales experience a significant growth and there are about 4.8% firms experience hostile takeover or the changes of board members.

TABLE I. THE OVERVIEW CHARACTERISTICS OF SAMPLES

Variable	Obs	Mean	Std. Dev.	Min	Max
E1	104	1.2699	0.6948	0.3158	4.5294
E2	104	1.6867	1.4023	0.3667	11.1442
M1	104	1.2114	0.6241	0.3694	4.1805
M2	104	1.5348	0.9779	0.4393	5.8263
Prospects	104	13.8322	15.1514	-10.2717	77.1150
Hostile	104	0.0481	0.2150	0.0000	1.0000

"Table II" shows the results of t test and paired Wilcoxon test. $M1$, $M2$, $E1$ are all significant at 1% level and Prospects is significant at 10% level. However, the difference between $E2$ and Hostile mean is not obvious. In other words, undervaluation may be an important factor that affects PTP transactions and lower growth prospects may motivate firms go private. To confirm this surmise, logistic method will be used for further analysis.

TABLE II. THE RESULTS OF T TEST AND PAIRED WILCOXON TEST

	Public-Private		Remain public		Statistic value	
	Mean	Media	Mean	Media	t value	z value
M1	0.996726	0.947368	1.443307	1.205101	-3.887856***	4.498899***
M2	1.178433	1.073356	1.919644	1.528661	-4.155680***	4.492393***
E1	1.046976	0.961776	1.510727	1.199812	-3.591734***	3.926371***
E2	1.459053	1.184230	1.932524	1.496573	-1.737112	3.542517***
Prospects	10.95826	8.823610	16.93600	14.83075	-2.040908*	2.293365*
Hostile	0.055556	0.000000	0.040000	0.000000	0.367157	0.133373

^a Notes: *significant at 10%, **significant at 5%, ***significant at 1%

It is essential to do correlation matrix analysis for independent variables before logistic regression. "Table III" shows that possibility of multicollinearity among $M1$, $M2$, $E1$ and $E1$, $E2$, $M2$, which means that it will make the regression coefficient and its significance lose its statistics meaning. The equation can be written as:

$$Z_i = \beta_0 + \beta_1 M1 + \beta_2 \text{Prospects} + \beta_3 \text{Hostile}$$

$$Z_i = \beta_0 + \beta_1 M2 + \beta_2 \text{Prospects} + \beta_3 \text{Hostile}$$

$$Z_i = \beta_0 + \beta_1 E1 + \beta_2 \text{Prospects} + \beta_3 \text{Hostile}$$

$$Z_i = \beta_0 + \beta_1 E2 + \beta_2 \text{Prospects} + \beta_3 \text{Hostile}$$

TABLE III. POSSIBILITY OF MULTICOLLINEARITY

	E1	E2	M1	M2	Prospects	Hostile
E1	1.000					
E2	0.632	1.000				
	0.000					
M1	0.974	0.585	1.000			
	0.000	0.000				
M2	0.786	0.654	0.823	1.000		
	0.000	0.000	0.000			
Prospects	0.265	0.128	0.273	0.206	1.000	
	0.007	0.197	0.005	0.036		
Hostile	0.129	0.104	0.106	0.143	-0.055	1.000
	0.191	0.292	0.286	0.147	0.583	

TABLE V. THE RESULTS OF MARGINAL EFFECT

	dy/dx	Std. Err.	z	P>z	[95% Conf. Interval]
M1	-0.3874	0.1097	-3.5300	0.0000	-0.6024 -0.1723
M2	-0.2861	0.0717	-3.9900	0.0000	-0.4267 -0.1456
E1	-0.3164	0.1014	-3.1200	0.0020	-0.5152 -0.1176
E2	-0.0624	0.0432	-1.4400	0.1490	-0.1471 0.0223

The results in "Table IV" show that both M1 and E1 are significant at 1% level in model 1 and model 3, which means that the management undervaluation and the actual undervaluation will motivate the firms go private. According to the definition of M1 and E1, it can be concluded that the undervaluation is an important factor affecting the PTP transaction in the short term. The results of model 2 and model 4 infer that management undervaluation is still the reason to motivate PTP transactions in the long run. On the contrary, PTP transactions may not influenced by the actual undervaluation during same time period. Therefore, it can be concluded that the management undervaluation have a significant impact on the privatization transaction in the short term and the long term, while the effect of the actual undervaluation may change in different time periods. One possible reason can explain is that the market will not underestimate the value of the firm under the condition of sufficient information in the long term. However, the management believes that the current stock price cannot reflect the firm's actual value since they knows more information about the firm. Moreover, lower growth prospects and hostile takeover are not the motivation of PTP transactions.

In addition, the marginal effect analysis in "Table V" indicates that: there is a significant negative correlation between management undervaluation and PTP transaction as well as the short-term actual undervaluation and PTP transaction. There is no significant difference in the probability change of the dependent variable caused by the change of the independent variables.

"Table VI" shows the interaction effects results: both management undervaluation and the actual undervaluation have an interaction effect with the growth prospects in the short term. A possible reason is that the market value is composed of the firm's current profitability and the discount of future growth value. Sales measures firm's profitability and affects the market value indirectly. Furthermore, the growth rate of sales is one of the important indicators to evaluate the financial performance and the financial performance has a positive relationship with the enterprise actual value.

TABLE VI. THE RESULTS OF INTERACTION EFFECTS

	Model1	Model2	Model3	Model4
M1	-3.010*** (1.029)			
M2		-1.440** (0.681)		
E1			-2.674*** (1.009)	
E2				0.199 (0.302)
Prospects	-0.075* (0.041)	-0.021 (0.040)	-0.075* (0.041)	0.020 (0.031)
Hostile	1.087 (1.289)	1.003 (1.270)	1.092 (1.233)	0.433 (0.967)
c. M1#c. Prospects	0.056 (0.035)			
c. M2#c. Prospects		0.002 (0.032)		
c. E1#c. Prospects			0.052 (0.033)	
c. E2#c. Prospects				-0.034 (0.023)
_cons	3.574*** (1.122)	2.344*** (0.900)	3.322*** (1.130)	0.256 (0.476)
Obs.	104	104	104	104

^a Notes: *significant at 10%, **significant at 5%, ***significant at 1%

TABLE IV. THE RESULTS OF LOGISTIC REGRESSION

	Model1	Model2	Model3	Model4
M1	-1.844*** (0.620)			
M2		-1.415*** (0.439)		
E1			-1.473*** (0.541)	
E2				-0.267 (0.191)
Prospects	-0.015 (0.014)	-0.019 (0.014)	-0.016 (0.014)	-0.024* (0.014)
Hostile	0.955 (1.199)	1.004 (1.270)	0.943 (1.160)	0.467 (0.979)
_cons	2.362*** (0.711)	2.315*** (0.652)	2.025*** (0.650)	0.828** (0.389)
Obs.	104	104	104	104

^a Notes: *significant at 10%, **significant at 5%, ***significant at 1%

VI. CONCLUSION

There are some main findings in this paper: Both in the short term and long term, management undervaluation is an important factor to influence privatization transactions, which supports hypothesis of undervaluation. In addition, growth prospects fail to pass the test, which means that the lower growth prospect cannot motivate the privatization transaction. Finally, there is no evidence to support that the prevention of hostile takeover is the driving force of PTP transactions.

There are some limitations in this paper. Firstly, the sample size is not big enough since the matching firms' selection under the many restrictions. Secondly, this paper does not classify samples by management buy-outs and non-management buy-outs, which cannot give more explanations to undervaluation.

REFERENCES

- [1] Halpern, P. et al. 1999. On the heterogeneity of leveraged going private transactions, *Review of Financial Studies* 12(2), pp. 281–309.
- [2] Jensen, M.C. 1986. Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review* 76(2), pp. 323-329.
- [3] Lehn, K. and Poulsen, A. 1989. Free cash flow and stockholder gains in going private transactions. *Journal of Finance* 44, pp. 771-788.
- [4] Lowenstein, L. 1985. Management buyouts. *Columbia Law Review* 85(4), pp. 730–784. doi: 10.2307/1122333
- [5] Maupin, R. 1987. Financial and stock market variables as predictors of management buy-outs. *Strategic Management journal* 8, pp. 319-327.
- [6] Renneboog, L. et al. 2007. Why do public firms go private in the UK? The impact of private equity investors, incentive realignment and undervaluation. *Journal of Corporate Finance* 13(4), pp. 591-628. doi: 10.1016/j.jcorpfin.2007.04.005
- [7] Sannajust, A. 2010. Motivations of Public to Private Transactions: an international study. Working Paper 5, pp. 72-78.
- [8] Weir, C. et al. 2005. Undervaluation, private information, agency costs and the decision to go private. *Applied Financial Economics* 15(13), pp. 947-961. doi:10.1080/09603100500278