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Abnormal Stock Returns and Share Repurchases Following Increases in R&D Expenditures

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ABSTRACT

This study assumes that firms with significant increases in research and development (R&D) expenditures have more information asymmetry between managers and investors. These firms may have greater difficulty in reflecting intrinsic firm value than other firms, and may have incentive to repurchase outstanding shares. Consequently, this study examines the relations among R&D, abnormal stock returns, and share repurchases. The empirical results demonstrate that firms that economically significantly increase in R&D exhibit abnormal stock returns. Such firms are more likely to make share repurchases, and abnormal stock returns are associated with positive repurchase announcements.

Keywords: Abnormal Stock Return, Research and Development, Intangible Assets, Share Repurchases, Information Asymmetry

INTRODUCTION

The relationship between intangible assets and firm value has attracted considerable research attention. According to the Financial Accounting Standards Board (SFAS No. 2; FASB, 1974) and the Accounting Research and Development

Foundation (SFAS No.1; ARDF, 1994), R&D expenditures must be expended as they are incurred.[1] However, Aboody and Lev (1998) identified a positive relationship between changes in capitalized software development costs and stock returns, but found no such relationship for expended software-development costs. Aboody and Lev supported the position of the U.S. GAAP regarding the capitalization of software-development costs.[2] Furthermore, they obtained results similar to those of Han and Manry (2004),[3] who found a positive relationship between R&D expenditures and stock price, suggesting that R&D expenditures should be capitalized.

Strong form efficient market hypothesis maintains that securities prices fully reflect all information. That is, even insider information is not useful. Nevertheless, Lev and Zarowin (1999) argued that traditional accounting reports do not provide value-relevant information for firms with significant intangible assets, and create a problem of information asymmetry. Daniel and Titman (2001) examined the contrast between tangible and intangible information. Their research argued that investors react appropriately to tangible information, but not intangible information. The investment benefits of intangible assets and information asymmetry have become a topic of interest. If investors react inappropriately to intangible information associated with increases in firm R&D, significant abnormal stock returns should occur following these increases. Following Eberhart, Maxwell, and Siddique (2004), this study adopts an economically significant R&D increase and examines abnormal stock returns resulting from information asymmetry. Furthermore, this study employs the three-factor model test proposed by Fama and French (1993) to investigate the relationship between R&D and abnormal stock returns in Taiwan.

If firms that exhibit economically significant increases in R&D display abnormal stock returns, then R&D increases may be a beneficial investment, and the same situation may apply for information. For example, Barth and Kasznik (1999) suggested that information asymmetry is frequently cited as a reason for share repurchases. Barth and Kasznik found that intangible assets are significantly and positively related to share repurchases. Moreover, Barth, Kasznik, and McNichols (2000) assumed that firms with substantial intangible assets, most of which are not recognized in firm financial statements, have greater information asymmetry between

1 FASB and ARDF justify expending all R&D for the following reasons: (1) The future benefits accruing from these expenditures are highly uncertain. (2) Whatever benefits may arise cannot be objectively measured. (3)No causal relationship has been verified between current R&D and future revenues.

2 The capitalization of software development costs is permitted when the technological feasibility of new products can be proven (SFAS no.86, FASB 1985).

3 Korea allowed the capitalization of R&D expenditures in 1987. Firms can capitalize R&D expenditures when those expenditures can be reasonably expected to yield future economic benefits.

managers and investors and more inherent uncertainty regarding firm value than other firms. Barth et al. investigated the relationship between intangible assets and analyst coverage, and found that firms with more intangible assets attract more analyst coverage, and also that analysts make greater efforts to follow such firms. These findings are consistent with the existence of a link between intangible assets and information asymmetry.

Aboody and Lev (2000) hypothesized that R&D activities increase information asymmetry between insiders and investors, and thus, insiders with high firm R&D spending may achieve higher trading profits than those in other firms. Their findings indicate that insider gains in R&D-intensive firms are significantly larger than insider gains in firms not engaged in R&D. Therefore, R&D is a major contributor to information asymmetry and insider gains.

Above studies indicate that intangible assets have an informational effect. Information asymmetry between insiders and shareholders may lead to firm misvaluation. Consequently, when insiders believe that the firm stock is undervalued, the firm may repurchase stock either as a signal to the market or to profit from investing in its own stock. This investigation further examines the relations among intangible assets, information asymmetry, and share repurchases.

The remainder of this paper is organized as follows. Section II discusses the sample selection procedures, and presents some summary statistics. Section III then describes the methodology, and Section IV details the tests and results. The final section comprises conclusions.

DATA CONSTRUCTION AND DESCRIPTIVE STATISTICS

Previous studies considered R&D expenditures as proxies for firm intangible assets (e.g. Barth & Kasznik, 1999; Barth et al. 2000). Eberhart et al. (2004) proposed that measurements of abnormal returns are more significant if samples contain firms with significantly increased R&D. They assert that if a firm has relatively stable R&D, i.e. no significant and unexpected R&D increase recently, there is no new information for the market to underreact to, and then these stocks should not be undervalued. Therefore, this study adopts R&D as a proxy for intangible assets, and focuses on firms that display an economically significant increase in R&D. This study requests firms that have R&D intensity, defined as R&D to sales, of at least 1 percent at the beginning of the year in which they increase their R&D.[4] Moreover, the sampled firms must increase its R&D intensity by at least 5 percent. Besides, the sample does

4 Following Liu (2003), this investigation focuses on firms with an R&D intensity of at least 1 percent.

not include financial institutions.[5] After eliminating firms that do not meet the requirements, this study obtains a final sample of 748 firm-year observations from 1994 to 2003. The accounting and stock price data were obtained from the Taiwan Economic Journal database (TEJ). The sample firms have average book-to-market equity of 0.75, with a maximum of 8.85 and a minimum of 0.02 during the year in which R&D increased. The average and median of R&D to sales are 4.63 percent and 3.04 percent, respectively.

Additionally, the share repurchase data from 2000 to 2003 were collected from the Taiwan Security Exchange Corporation (TSEC).[6] The information included the names of firms that repurchased their own shares, and the announcement dates for these repurchases. After eliminating financial institutions and missing data for any of the regression variables, a sample of 398 repurchases was obtained. Most share repurchase announcements are in the electronics industry, and include 189 frequencies (47.487%).

Table 1 lists the equal-weighted average and median monthly returns of two subsamples, including economically significant increases in R&D and economically insignificant increases in R&D, and also shows the difference in average monthly returns between these two subsamples. The present sample consists of 748 firm-year observations and the sample period runs from 1994 to 2003. For the average monthly returns of firms with economically significant increases in R&D have a mean percentage monthly returns of -0.675%, while those with economically insignificant increases in R&D have a mean monthly returns percentage of -0.926%. Although firms with economically significant increases in R&D have a negative average monthly return, their average monthly return is 0.251% higher than that of economically insignificant increase in R&D ($R_{pt} - NR_{pt}$).

Szewczyk, Tsetsekos, and Zantout (1996) contend that firms with better investment opportunities (namely, high-growth firms) are more likely to make better R&D investments. This study partitions the sample into high-growth, medium-growth, and low-growth firms. As in the above results, although the monthly returns associated with economically significant increases in R&D for high-growth, medium-growth, and low-growth firms are below zero, the difference in average monthly returns between firms with economically significant and insignificant R&D increases is greater than zero.

5 This study ignores financial institutions because they have inconsequential intangible assets, and the accounting variable used for hypothesis testing, is less relevant for firms in these industries.

6 It became legal for firms to repurchase outstanding shares in Taiwan from August 7, 2000.

Table 1 Descriptive Statistics for Firms Average Monthly Return with Economically Significant Increases in R&D

	Mean	Median	Std. Deviation	Maximum	Minimum
Full sample firms average monthly returns (%)					
Economically significant increases in R&D (minus r_f)	-0.675%	0.020%	12.264%	50.933%	-43.165%
Economically insignificant increases in R&D (minus r_f)	-0.926%	-1.523%	8.876%	22.307%	-19.549%
R_{pt}-NR_{pt}	0.251%	0.239%	6.270%	28.627%	-27.745%
High-growth firms average monthly returns (%)					
Economically significant increases in R&D (minus r_f)	-0.610%	-0.330%	10.501%	38.345%	-31.798%
Economically insignificant increases in R&D (minus r_f)	-1.038%	-1.250%	9.073%	27.730%	-23.189%
R_{pt}-NR_{pt}	0.428%	0.212%	3.176%	10.615%	-9.060%
Medium-growth firms average monthly returns (%)					
Economically significant increases in R&D (minus r_f)	-0.473%	0.364%	9.790%	26.102%	-25.901%
Economically insignificant increases in R&D (minus r_f)	-0.956%	-0.902%	8.403%	21.473%	-19.647%
R_{pt}-NR_{pt}	0.483%	0.040%	4.126%	18.822%	-7.435%
Low-growth firms average monthly returns (%)					
Economically significant increases in R&D (minus r_f)	-0.598%	-2.127%	14.076%	38.249%	-52.939%
Economically insignificant increases in R&D (minus r_f)	-0.772%	-0.920%	10.802%	30.585%	-24.805%
R_{pt}-NR_{pt}	0.175%	0.172%	8.640%	28.729%	-41.155%

METHODOLOGY

The Fama-French Three-Factor Model

Equation (1) illustrates the Fama-French three-factor model test for abnormal stock returns:

$$R_{pt} - R_{ft} = \alpha_p + b_p \left(R_{mt} - R_{ft} \right) + s_p SMB_t + h_p HML_t + \varepsilon_{pt} \qquad (1)$$

where Rpt represents the sample average return for firms with economically significant increases in R&D, the intercept (α) in the above equation represents the abnormal return measure, and R_f is the one month interest spot rate of the Bank of Taiwan. Furthermore, $R_m - R_f$ denotes excess market return, SMB (Small Minus Big) represents the average return on the small portfolios minus that on the big portfolios, and HML (High Minus Low) is the average return on the value portfolios minus that on the growth portfolios.

Eberhart et al. (2004) found that firms with an economically significant increase in R&D have significantly abnormal stock returns. However, Eberhart et al. did not examine abnormal stock returns for firms that insignificantly increase their R&D, and nor did they examine the difference in the effect of significant versus insignificant increases in R&D on abnormal stock returns. This investigation not only examines abnormal stock returns of firms with economically significant and insignificant increases in R&D, but also investigates the difference in abnormal stock returns between economically significant and insignificant increases in R&D. The model is shown in Equation (2):

$$R_{pt} - NR_{pt} = \alpha_p + b_p\left(R_{mt} - R_{ft}\right) + s_p SMB_t + h_p HML_t + \varepsilon_{pt} \quad (2)$$

The dependent variable denotes the difference between sample portfolio returns for economically significant and insignificant increases in R&D ($R_{pt} - NR_{pt}$).[7]

The Logit Regression Equation

To test the predictions relating to the likelihood of a firm announcing a share repurchase on the open market, this study estimates the following Logit regression equation:

$$\begin{aligned} SR_{it} = {} & \alpha_{it} + \beta_1 ESRD_{it} + \beta_2 RD_{it} + \beta_3 RD_{i(t-1)} + \beta_4 lnASSET_{i(t-1)} + \beta_5 INSTIT_{i(t-1)} \\ & + \beta_6 CASH_{i(t-1)} + \beta_7 CASHFLOW_{i(t-1)} + \beta_7 LEVER_{i(t-1)} + \beta_9 MEBE_{i(t-1)} \end{aligned} \quad (3)$$

where i denotes the firm, and t represents time measured based on firm fiscal year. Furthermore, SR equals one for share repurchases and 0 otherwise. Moreover, ESRD equals one for an economically significant increase in R&D and 0 otherwise. Additionally, RD_t represents the ratio of research and development expenditure to sales at period t. Moreover, $RD_{(t-1)}$ denotes research and development expenditure to sales for the prior period $t-1$. Furthermore, lnASSET is the logarithm of assets. Furthermore, INSTIT equals the percentage of outstanding shares held by institutional investors. CASH denotes cash and equivalents to assets. Moreover, CASHFLOW is net income before taxes plus depreciation and changes in deferred taxes and other deferred changes to assets. LEVER is net debt (debt minus cash and equivalents) to

[7] Aboody and Lev (2000) examined the relationships among information asymmetry, R&D, and insider gains. They employed an intercept test using the three-factor model of Fama and French (1993). The dependent variable is the difference between portfolio returns of R&D and non-R&D firms.

assets. Finally, MEBE is market-to-book equity.[8]

EMPIRICAL RESULTS

The Abnormal Stock Returns

Table 2 summarizes the results of the abnormal stock return test for the whole sample from 1994 to 2003. The proposed framework applies the three-factor model in Fama and French (1993) to examine whether economically significant increases in R&D cause abnormal stock returns. Panel A reveals that abnormal stock returns (α) is insignificantly negative (coefficient estimate = -0.03, p-value = 0.560). Moreover, panel B reveals that α is negative and significant (coefficient estimate = -0.008, p-value < 0.01), samples with insignificantly increased R&D exhibit negative abnormal stock returns. Panel C illustrates the difference in abnormal stock returns between firms with and without significantly increases in R&D. The intercept is positive, but insignificant.

Table 2 Abnormal Stock Returns：Full Sample

The Fama-French Three-Factor Model					
α	b	s	h	F	Adj-R^2
Panel A：Economically significant increase in R&D					
-0.003 (0.560)	1.370 (0.000)	0.940 (0.000)	-0.493 (0.000)	134.633	0.771
Panel B：Economically insignificant increase in R&D					
-0.008 (0.006)	1.025 (0.000)	0.826 (0.000)	0.020 (0.713)	318.106	0.889
Panel C：R_{pt}-NR_{pt}					
0.004 (0.323)	0.345 (0.000)	0.114 (0.492)	-0.513 (0.000)	27.844	0.404

Note: The intercept (α) is the abnormal stock return measure. The p-values are reported in parentheses below each coefficient.

Table 3 lists the abnormal stock return test for high-growth firms. Even in Panel A, high-growth firms do not appear to have significant abnormal stock returns. Panel

[8] Following the approach of Sougiannis (1994), Barth and Kasznik (1999), Dittmar (2000), and Eberhart *et al.* (2004), this investigation includes *ESRD*, *RD*, *lnASSET*, and *INSTIT* as a proxy for information asymmetry. Based on the excess capital hypothesis (Jensen, 1986; Stephens & Weisbach, 1998), this study includes the variables *CASH* and *CASHFLOW*. This study also includes *LEVER* to examine the optimal leverage ratio hypothesis (Bagwell & Shoven, 1988). Finally, Lakonishok, Shleifer, and Vishny (1994) and Ikenberry, Lakonishok, and Vermaelen (1995) demonstrated that firms with low market-to-book equity achieve abnormal returns during subsequent periods. A negative *MEBE* coefficient may indicate that a firm repurchases shares to take advantage of a market mispricing of the value of the share.

C illustrates positive abnormal stock returns and is significantly different from zero (α coefficient estimate = 0.005, p-value = 0.044). Comparing the difference of abnormal stock returns between samples with economically significant and insignificant increases in R&D indicates that increasing R&D may be beneficial.

Table 3 Abnormal Stock Returns：High-Growth Firms

The Fama-French Three-Factor Model					
α	b	s	h	F	Adj-R^2
Panel A：Economically significant increases in R&D					
-0.002 (0.570)	1.182 (0.000)	0.615 (0.000)	-0.668 (0.000)	239.062	0.857
Panel B：Economically insignificant increases in R&D					
-0.007 (0.011)	1.071 (0.000)	0.660 (0.000)	-0.478 (0.000)	313.756	0.887
Panel C：R_{pt}-NR_{pt}					
0.005 (0.044)	0.111 (0.001)	-0.046 (0.629)	-0.191 (0.000)	13.970	0.246

Note: The intercept (α) is the abnormal stock return measure. The p-values are reported in parentheses below each coefficient.

Table 4 Abnormal Stock Returns：Medium-Growth Firms

The Fama-French Three-Factor Model					
α	b	s	h	F	Adj-R^2
Panel A：Economically significant increases in R&D					
-0.002 (0.584)	1.123 (0.000)	0.898 (0.000)	-0.346 (0.000)	163.180	0.803
Panel B：Economically insignificant increases in R&D					
-0.008 (0.003)	0.962 (0.000)	0.845 (0.000)	0.013 (0.819)	282.234	0.876
Panel C：R_{pt}-NR_{pt}					
0.006 (0.053)	0.162 (0.000)	0.052 (0.644)	-0.359 (0.000)	22.964	0.356

Note: The intercept (α) is the abnormal stock return measure. The p-values are reported in parentheses below each coefficient.

Table 4 lists the abnormal stock return test for medium-growth firms. As in Table 3, there is no evidence to support that medium-growth firms have significant abnormal stock returns. When comparing the difference of abnormal stock returns between samples with economically significant and insignificant increases in R&D (as shown in panel C), the coefficient of abnormal stock returns is significantly positive (α=

0.006, p-value < 0.1). However, the intercept shown in Panel C of Table 5 is not significantly different from zero, and indicates that the difference of abnormal stock returns do not exist in low-growth firms.

Table 5 Abnormal Stock Returns：Low-Growth Firms

The Fama-French Three-Factor Model					
α	b	s	h	F	Adj-R^2
Panel A：Economically significant increases in R&D					
-0.005 (0.524)	1.306 (0.000)	1.510 (0.000)	0.112 (0.487)	66.107	0.621
Panel B：Economically insignificant increases in R&D					
-0.007 (0.014)	1.067 (0.000)	0.982 (0.000)	0.538 (0.000)	434.461	0.916
Panel C：R_{pt}-NR_{pt}					
0.002 (0.789)	0.239 (0.017)	0.527 (0.068)	-0.426 (0.007)	3.515	0.060

Note: The intercept (α) is the abnormal stock return measure. The p-values are reported in parentheses below each coefficient.

The Likelihood of Share Repurchase

Table 6 indicates that firms with economically significant increases in R&D and greater R&D intensity are significantly more likely to announce share repurchase plans. The coefficients on information asymmetry proxies, ESRD and RD_t, (in regression Eq. (c) & (d)) are positive, as well as being significantly different from zero (in regression Eq. (c), coefficient estimate = 0.281 & 0.107; p-value = 0.043 & 0.011, respectively). Moreover, according to our results, firms with an economically significant increase in R&D and more intangible assets related to R&D are more likely to repurchase shares. This result corresponds to the findings of the previous investigation of Barth and Kasznik (1999). However, $RD_{(t-1)}$ is positive, but not significantly different from zero. The deferred effect for R&D may not influence share repurchase decisions. Additionally, the coefficients of MEBE are all significantly negative (in regression Eq. (a), (b), (c), & (d); p-value < 0.01, respectively). The results support the findings of Dittmar (2000) that a negative coefficient on MEBE may indicate that a firm should repurchase shares to take advantage of the misvaluation.

Table 6 The Likelihood of Share Repurchases

	Regression Eq. (a)		Regression Eq. (b)		Regression Eq. (c)		Regression Eq. (d)	
	coefficient	*p-value*	coefficient	*p-value*	coefficient	*p-value*	coefficient	*p-value*
α	-2.480	(0.000)	-2.489	(0.000)	-2.489	(0.000)	-2.588	(0.000)
ESRD	0.226	(0.137)	0.258	(0.067)	0.281	(0.043)	0.273	(0.048)
RD_t	0.001	(0.973)	0.016	(0.262)	0.107	(0.011)	0.114	(0.005)
$RD_{(t-1)}$	0.017	(0.583)						
lnASSET	0.103	(0.014)	0.105	(0.013)				
INSTIT	0.659	(0.259)	0.657	(0.260)	0.648	(0.266)		
CASH	-0.001	(0.952)	-0.001	(0.924)	-0.001	(0.945)		
CASHFLOW	-0.006	(0.564)	-0.005	(0.590)	-0.006	(0.567)		
LEVER	-0.010	(0.010)	-0.011	(0.008)	-0.011	(0.005)	-0.011	(0.001)
MEBE	-0.189	(0.000)	-0.189	(0.000)	-0.180	(0.000)	-0.175	(0.000)
Log likelihood ratio	1973.339		1973.641		1974.837		1977.189	
R^2	*0.028*		*0.028*		*0.027*		*0.025*	

Note: ESRD equals one for an economically significant increase in R&D and 0 otherwise. Additionally, RD_t represents the ratio of research and development expenditure to sales at t period. Moreover, $RD_{(t-1)}$ is research and development expenditure to sales for the prior period t-1. lnASSET is the logarithm of asset. Furthermore, INSTIT equals the percentage of outstanding shares held by institutional investors. CASH denotes cash and equivalents to assets. Moreover, CASHFLOW is net income before taxes plus depreciation and changes in deferred taxes and other deferred changes to assets. LEVER is net debt (debt minus cash and equivalents) to assets. Finally, MEBE is market-to-book equity. The p-values are reported in parentheses.

The Announcement Effect of Share Repurchase

The empirical results are summarized in Table 7 and shown in Figure 1. Table 7 reveals negative average abnormal return (AR) reactions before share repurchase announcement, and reveals positive AR reactions following share repurchase announcement. These AR results indicate that the firm stock is undervalued before the event day, but this misevaluation should be corrected when the firm repurchases its own shares. Combining this result with the Logit analysis (Table 6), it can be seen that firms with an economically significant increase in R&D are more likely to repurchase their own shares and realize positive repurchase announcement returns.

Figure 1 illustrates the cumulative average abnormal return (CAR) from 20 days before the repurchase announcement through until 20 days after the announcement. The figure indicates that there is a negative impact before the announcement and a positive impact following the announcement.

Table 7 The AR and CAR of Share Repurchase Announcement of Firms with an Economically Significant Increase in R&D

Event Day	AR%	*p-value*	Event window	CAR%	*p-value*
-20	-0.262	(0.152)	(-20,0)	-5.799	(0.000)
-17	-0.171	(0.384)	(-17,0)	-5.374	(0.000)
-11	-0.443	(0.048)	(-11,0)	-4.347	(0.000)
-5	-0.550	(0.018)	(-5,0)	-1.687	(0.003)
-4	-0.637	(0.006)	(-4,0)	-1.137	(0.019)
-3	-0.373	(0.093)	(-3,0)	-0.500	(0.161)
-2	-0.495	(0.044)	(-2,0)	-0.127	(0.382)
-1	-0.259	(0.223)	(-1,0)	0.368	(0.131)
0	0.628	(0.009)	(0,0)	0.628	(0.004)
1	1.410	(0.000)	(0,1)	2.038	(0.000)
2	0.472	(0.039)	(0,2)	2.510	(0.000)
3	0.190	(0.334)	(0,3)	2.700	(0.000)
4	0.132	(0.539)	(0,4)	2.832	(0.000)
5	0.253	(0.176)	(0,5)	3.084	(0.000)
11	0.383	(0.063)	(0,11)	3.421	(0.000)
17	0.107	(0.590)	(0,17)	3.639	(0.000)
20	-0.127	(0.517)	(0,20)	3.997	(0.000)

Note: This investigation uses the notations developed by Boehmer, Musumeci, and Poulsen (1991) to figure standardized average abnormal returns (AR) for event day t, and standardized cumulative average abnormal returns (CAR) of event window (t1, t2). Furthermore, following Boehmer et al., the standardized residual cross-sectional method is used to figure the test statistics. The p-values are reported in parentheses.

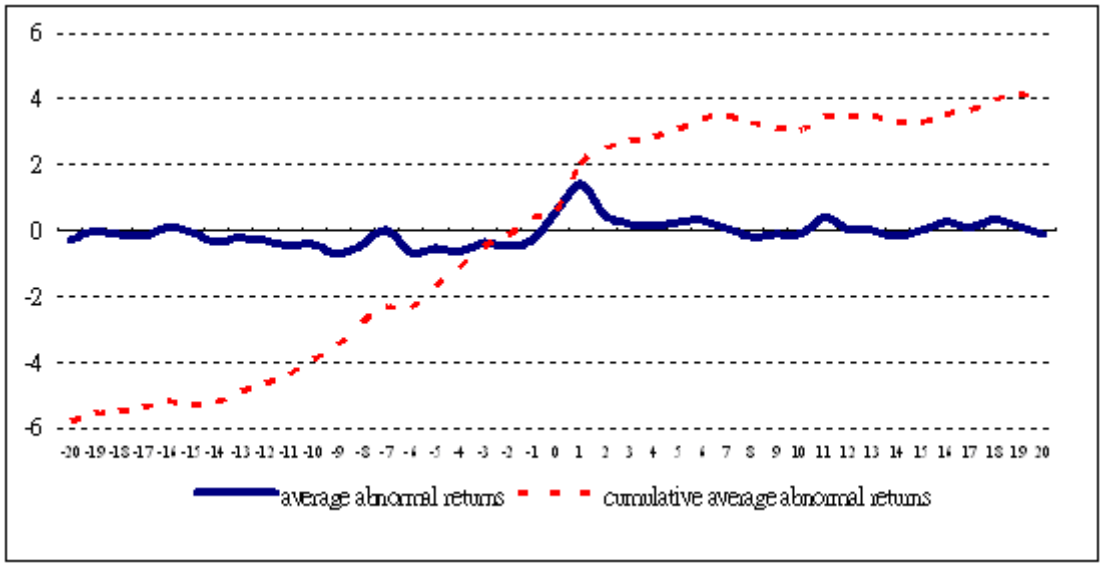

Figure 1 The AR and CAR of Share Repurchase Announcement of Firms with an Economically Significant Increase in R&D

CONCLUSION

This investigation adopts R&D as a proxy for intangible assets and assumes that firms with significant increases in R&D expenditure have more information asymmetry between managers and investors than those without significant increases in R&D. Such firms may have greater difficulty in reflecting intrinsic firm value than other firms, and may have incentive to repurchase outstanding shares. This study thus examines the relations among R&D, abnormal stock return, and share repurchases.

In testing the relations between intangible assets and abnormal stock returns, the framework described here applies the Fama-French three-factor model. This study focuses on firms with economically significant increases in R&D, and examines whether these firms exhibit abnormal stock returns during 1993 to 2003. The empirical results indicate that abnormal stock returns exist for high-growth and medium-growth firms, and thus increases in R&D may be a beneficial investment.

This study applies the Logit analysis to test the relations between R&D and share repurchases in the period of 2000 to 2003. The empirical results demonstrate that firms with an economically significant increase in R&D and greater R&D intensity are significantly more likely to repurchase shares. This result supports the findings of Barth and Kasznik (1999). Combining this result with event study analysis, firms with an economically significant increase in R&D are more likely to repurchase their own shares, and are also more likely to realize a positive repurchase announcement abnormal return.

Although valuing intangibles is extremely difficult, this does not imply that important information can not be provided to users by attempting to value these intangibles (Bernhut, 2001). This study presents empirical findings to support this notion. Firms with an economically significant increase in R&D display abnormal stock returns, and are more likely to repurchase their own shares. Furthermore, the AICPA Committee on Financial Reporting (1994) has already noted that financial report users welcome improved disclosure in relation to intangible assets. Although users have reservations regarding manager valuations of intangible assets, they are aware of the importance of these assets and thus desire information about them. In the future, the government should strengthen firm disclosure of financial statements, and thus enhance informational transparency.

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