

Corporate Cash Holdings and Advertising Spending After the Financial Crises

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This paper examines the link between a firm's characteristics and advertising budget allocation. It also shows the firm's behavior after the Asian financial crisis and the American subprime mortgage crisis. Results show that crises can significantly impact management decisions. They can influence how multinational companies plan for their future. The study also identifies the macroeconomic factors that can influence a firm's decision to allocate funds.

Keywords: advertising, cash holdings, interest rates, financial crisis

INTRODUCTION

Advertising can boost visibility of a firm and generate interests in products and services. It is one of the marketing tools that can help position a brand in the market. Multinational corporations need a clear strategy to build brand awareness and recognition. Effective advertising can help firms stay competitive by capturing buying power and market share, especially during the economic downturns or recovery periods. Prior literature finds that advertising can benefit businesses in various ways. DiPietro (2007) documents that advertising can help businesses reach potential customers and influence the customer satisfaction. Jiang et al. (2024) find evidence to support that advertising improves brand value, increases attention, and significantly reduces financial costs. Since customer satisfaction has a positive impact on firm value (O'Sullivan and McCallig, 2012), businesses should allocate more funds toward advertising expenditures to attract customers. Increased advertising spending can help a firm raise the profit by increasing household consumption and spending. Fee et al. (2009) find a causal and economically substantial relationship between foreign cash flow and investment spending, including advertising. Nerlove and Arrow (1962) find evidence that management may allocate free cash flow toward advertising to increase sales in case of constant price and elastic advertising is elastic. However, based on the study of Eastlack and Rao (1989), the relationship between advertising budgeting and sales is not significant in short run.

Some studies examine the various corporate motives for cash holdings, including agency motive, cost reduction, and precautionary savings (Jensen, 1986; Opler et al., 1999; Han and Qui, 2007; Bates et al., 2009). Firms with strong corporate governance tend to have high cash reserves and spend less on capital expenditures (Harford et al., 2008). Management may use cash to hedge against risk and uncertainty (Acharya et al., 2007; Haushalter et al., 2007; Denis and Sibilkov, 2009). This study adds to the literature by examining whether the corporate cash holdings are related to the advertising budgeting. Based on the affordability method of advertising budgeting, management can allocate a large advertising budget when they have excess funds. However, when the agency problem presents, management may choose to work in

their own interests. They may misallocate funds and over-advertise (Joseph and Richardson, 2002; Aaker and Carman, 1982) to benefit themselves. Some financial tools, such as cash flow and excess cash, can be employed to increase their power and control over the firm. Managers may allocate a larger advertising budget than necessary and intend to empower themselves by expanding the firm size. When the conflict of interests arises between management and stockholders, the misallocation of assets can cause damage to the firm value in long run.

Earnings are considered a crucial determinant of profits and stock returns. A firm's potential to generate future profits is generally caused by increase in revenue and effective cost management. Many researchers have demonstrated the relationship between a firm's earnings and profitability (Burgstahler and Dichev, 1997; Ramakrishnan and Thomas, 1992; Livnat and Zarowin, 1990; Bowen et al., 1987; Beaver et al., 1980). When a firm is performing well and consistently have high earnings, its financial health can boost investor confidence, leading to the increase in stock prices and firm value. The predictive power of earnings and cash flows for stock returns are found to be significant (Hodgson and Stevenson-Clarke, 2000; Easton and Harris, 1991; Nwaeze, 1998). Investors usually view earnings as an indicator of profitability, which often leads to higher stock prices. When the firm has strong potential for growth, the increase in market capitalization will further contribute to its potential profits. Higher profits can heighten interests of investors and enhance trading volume.

Advertising plays an important role in the capital market efficiency. It can help increase a firm's visibility in the market and attract investors, resulting in improved liquidity of their securities. Nejadmalayeri et al. (2013) examine the effect of advertising on the cost of bonds, and document that advertising improves the firm's bond liquidity in bond market. Advertising expenditures are found to be related to stock performance. Prior studies suggest that advertising leads to increased liquidity and improved performance in stocks (Grullon et al., 2004; Ho et al., 2005; Madsen and Niessner, 2019; Focke et al., 2020). Mayer (2021) investigates advertising exposure from the corporate sponsorships of college football bowl games, and tests whether advertising affect stock prices through investor attention. The study finds that advertising exposure generates price pressure in the stock market. Increased marketing investment can be an effective strategy to help businesses attract investors and stay competitive in the industry, leading to improved stock performance and enhanced trading volume.

Economic condition is a major factor to determine business behavior in financing and investment. Many studies in finance show significant relationship between interest rates, cash flow and stock prices (Cochrane, 1991; Balvers et al., 1990; Schwert, 1990; Barro, 1990; Kaul, 1987; Geske and Roll, 1983; Fama, 1981; Fama and Schwert, 1977). Macroeconomic factors, like interest rates, can negatively impact the stock returns. During certain times such as economic downturns or periods of increased competition, management decisions to allocate funds may be affected by the change in those factors. Thus, firms are expected to be flexible and have different advertising budgeting policies in dynamic economic conditions.

This paper examines the short-run and long-run effect of cash holding, earnings, firm size, leverage, and economic factors on advertising expenditures. Firstly, the long-run correlation between advertising investment and control variables will be examined for the past decades. Secondly, the short-run relationship will be examined. Lastly, to better understand the corporate behavior during the recovery periods, the relationship after the Asian financial crisis in 1997 and American subprime mortgage crisis (also called global financial crisis) in 2008 will be examined. Management may react differently to the crisis arose overseas compared to the one arose domestically. Multinational corporations need to adjust to the realities and new challenges brought about by the economic slowdown. They should be flexible to adapt to changes during dynamic economic conditions. Some factors that affect management decisions may show different impact on advertising after the crises.

DATA AND MODEL SPECIFICATION

This section describes the data and empirical methodology. The sample consists of S&P firms that are categorized as industrial class and have no missing data items. They are multinational corporations that report the use of risk management tools. Firms in all industries, except finance and utility industries, are

included. The sample excludes American Depository Receipts, closed-end funds, foreign-domiciled firms, Primes and Scores, real estate investment trusts, and companies with negative shareholders' equity. The securities identified as other than ordinary common shares, with CRSP share codes 10 and 11, are also dropped from the sample (Barber and Lyon 1997). It is not appropriate to include firms in financial industry and utility industry in the sample. Firms in utility industry are facing heavy regulations compared to industrial firms. Banks and other financial intermediaries operate in different business lines and their cash holdings are regulated. Thus, financial institutions and utility firms are excluded due to engaging in different business activities and regulation. The final sample consists of 330 multinational firms with complete data and covers the period from 1989 to 2019.

The firm specific factors, including advertising expenditures, earnings, cash flow, cash, growth opportunity, firm size, and capital structure are obtained from COMPUSTAT, 10-Q reports, and 10-K reports. The economic data on thirteen-week Treasury bill rate, thirty-year Treasury bond rates, and gross domestic product are obtained from the International Monetary Fund (IMF).

The firm characteristic factors usually have no informational lag. They are available on a continuous basis, while the macroeconomic data are not available on a continuous basis. To employ both firm characteristic data and macroeconomic data in the same models, the possible lags in the macroeconomic data availability must be adjusted, as suggested by Estrella and Mishkin (1998). The economic data available as of the end of a given period are assigned to that specific period. The White Heteroscedasticity Test is also used to correct for possible heteroscedasticity.

The long-run estimated equation is:

$$ADVT_{i,t} = \alpha + b_1 FUNDS_{i,t} + b_2 GROWTH_{i,t} + b_3 SIZE_{i,t} + b_4 LEVERAGE_{i,t} + b_5 ECON_{i,t} + \varepsilon_i \quad (1)$$

where *ADVT* is the logarithm of the advertising expenditures at the end of the period. *FUNDS* are defined as the logarithm of funds, measured by earnings per share (*EPS*), cash flow per share (*CFPS*), and cash holding (*CASH*). If the coefficient *b*₁ is statistically different from zero, it implies that the change in earnings or cash holding can affect the firm's decision to allocate the advertising expenditure. The earning per share is calculated as net income divided by number of common share outstanding. The cashflow per share is computed as cash flow divided by number of common share outstanding. *EPS* and *CFPS* are defined as the logarithm of earnings per share and cash flow per share, respectively. *CASH* is the logarithm of the amount of cash held by the firm. *GROWTH* is the growth opportunity, measured by the market-to-book ratio. Since the market stock prices can reflect investors' expectations of a firm's future growth prospects, the market-to-book ratio is employed as a measure of the growth opportunity. *SIZE* is measured as the logarithm of the firm's total assets. *LEVERAGE* is defined as the capital structure of the corporation, measured by the ratio of total liabilities to equity (*TLEQ*) and the ratio of long-term debt to equity (*LTDEQ*).

The macroeconomic factors (*ECON*) include interest rates, maturity spread, and gross domestic product. *TBILL* is the thirteen-week Treasury bill rate. *SPREAD*, the maturity spread, is computed as the difference between the 30-year Treasury bond rates and thirteen-week Treasury bill rates. *GDP* is the logarithm of gross domestic product.

The error correction model is also employed in this study. It is used to estimate the short-run relationships in the variables. The short-term estimated equation is as follow:

$$\Delta ADVT_{i,t} = \alpha + b_1 \Delta FUNDS_{i,t} + b_2 \Delta GROWTH_{i,t} + b_3 \Delta SIZE_{i,t} + b_4 \Delta LEVERAGE_{i,t} + b_5 \Delta ECON_{i,t} + \varepsilon_i \quad (2)$$

where Δ denotes the change in each variable is calculated as the difference between current-period value and previous-period value.

$$\Delta Factor_t = Factor_t - Factor_{t-1}$$

where, *Factor*_t and *Factor*_{t-1} represent the value of variables employed in the models in current period and prior period, respectively.

EMPIRICAL RESULTS

The summary statistics of firm characteristic factors and macroeconomic factors during 1989-2019 are presented in Table 1. The variables in the table are: 1) *ADVT*, the logarithm of the advertising expenditures at the end of the period, 2) *EPS*, the logarithm of earnings per share, 3) *CFPS*, the logarithm of cash flow per share, 4) *CASH*, the logarithm of cash, 5) *GROWTH*, the market-to-book ratio, 6) *SIZE*, the logarithm of total assets, 7) *TLEQ*, the total liability to equity ratio, 8) *LTDEQ*, the long-term debt to equity ratio, 9) *TBILL*, the thirteen-week Treasury bill rate, 10) *SPREAD*, the maturity spread computed as the difference between the 30-year Treasury bond rate the thirteen-week Treasury bill rate, and 11) *GDP*, the logarithm of gross domestic product.

TABLE 1
DESCRIPTIVE STATISTICS

	ADVT	EPS	CFPS	CASH
Mean	6.122	1.877	2.053	7.757
Maximum	6.447	2.210	2.349	8.891
Minimum	5.500	1.497	1.670	6.361
Std. Dev.	0.233	1.567	1.714	0.903
	GROWTH	SIZE	TLEQ	LTDEQ
Mean	4.094	9.739	3.100	0.704
Maximum	48.303	12.355	3.754	0.901
Minimum	1.353	5.489	2.306	0.567
Std. Dev.	9.984	0.794	0.445	0.073
	TBILL	SPREAD	GDP	
Mean	2.995	2.375	9.296	
Maximum	8.127	4.248	9.836	
Minimum	0.020	0.059	8.638	
Std. Dev.	2.472	1.336	0.376	

The multinational corporations included in the sample are large industrial firms. They have high growth opportunity with the average market-to-book ratio of 4.09. The average logarithm of cash and total assets are 7.757 and 9.739, respectively. The data also show that those industrial firms hold 1% of their assets in cash. About 2.3% of their cash holdings are allocated to advertising expenses with the logarithm of advertising expenditures ranged between 5.50 and 6.45 during the sample period. Most of them have a high level of leverage in their capital structure. The mean of total liabilities to equity and long-term debt to equity are 3.1 and 0.7, respectively. These statistics indicate that the average capital structure consists of one-third equity and two-thirds debt, and the multinational firms mainly finance through short-term liabilities.

The descriptive statistics for macroeconomic data are also presented in the table. The mean of logarithm of gross domestic product is 9.3. The thirteen-week Treasury bill rates ranged between 0.02% and 8.13%, with the average around 3%; while the maturity spread ranged between 0.06% and 4.25% during the same period. The movements of short-term and long-term U.S. Treasury rates are shown in Figure 1. The interest

rates steadily declined during 1989-2019. The thirty-year Treasury rates decreased more gradually and exhibited less fluctuation compared to the thirteen-week Treasury rates.

FIGURE 1
U.S. TREASURY RATES DURING 1989-2019

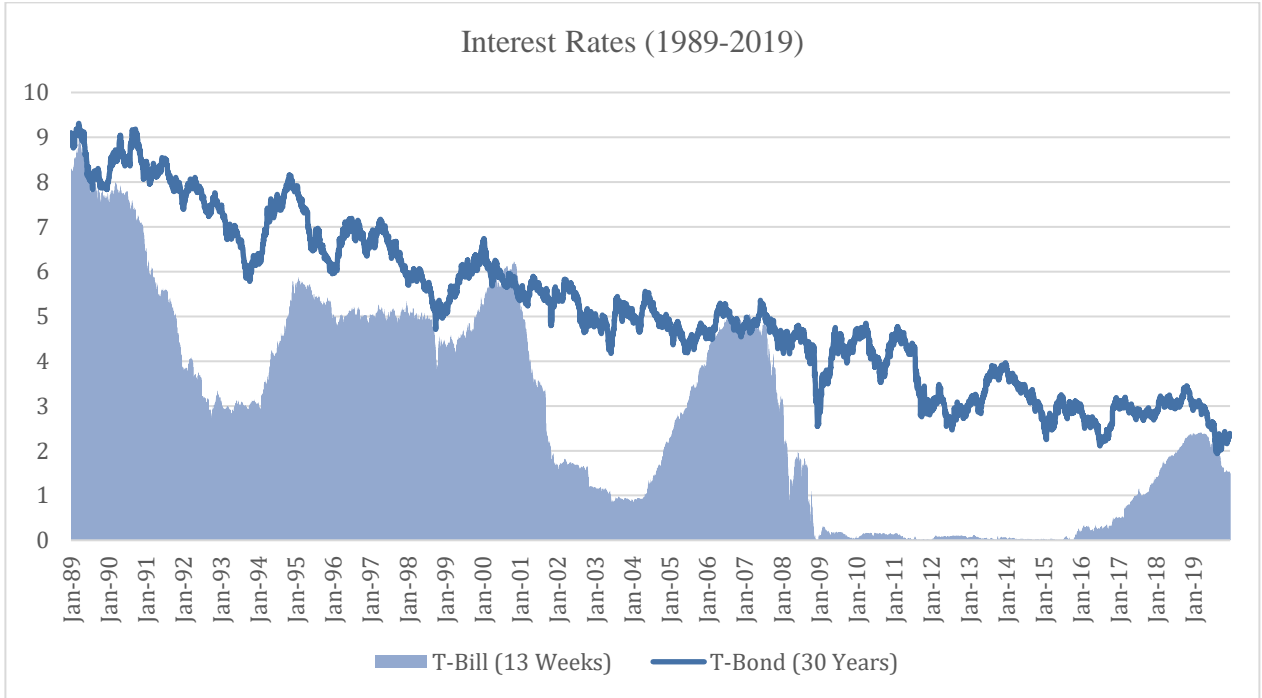


FIGURE 2
U.S. INFLATION RATES AND FED FUNDS RATES DURING 1989-2019

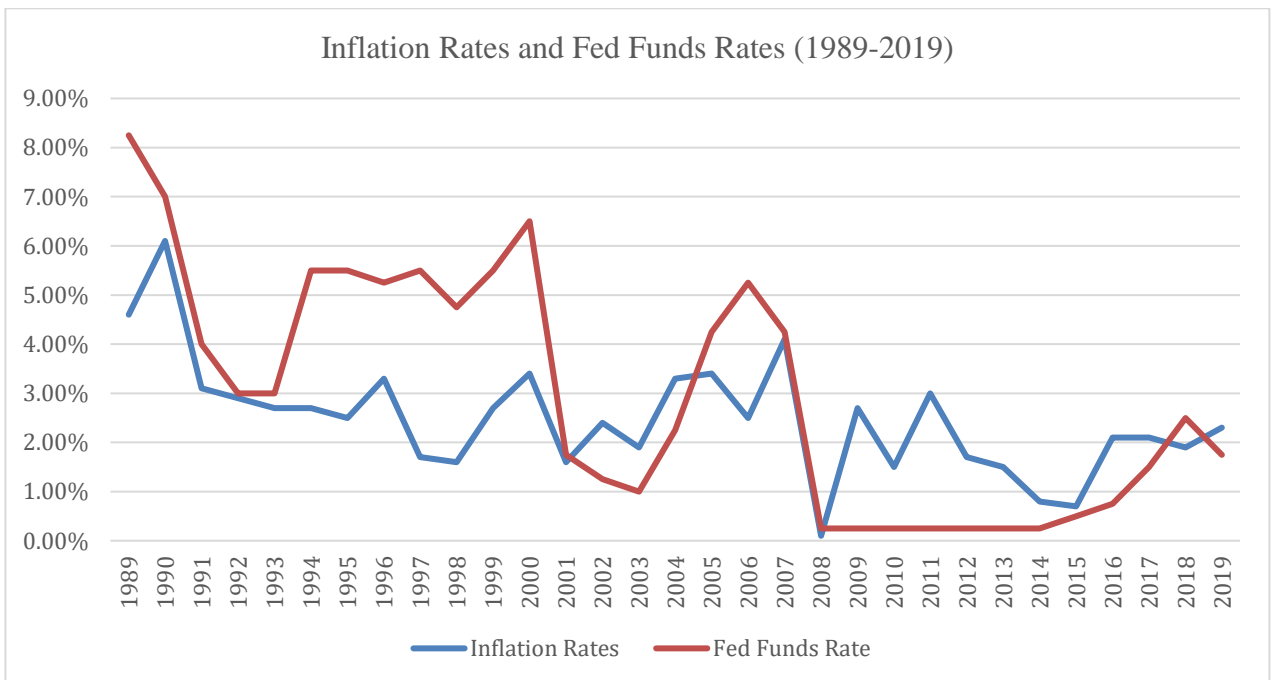
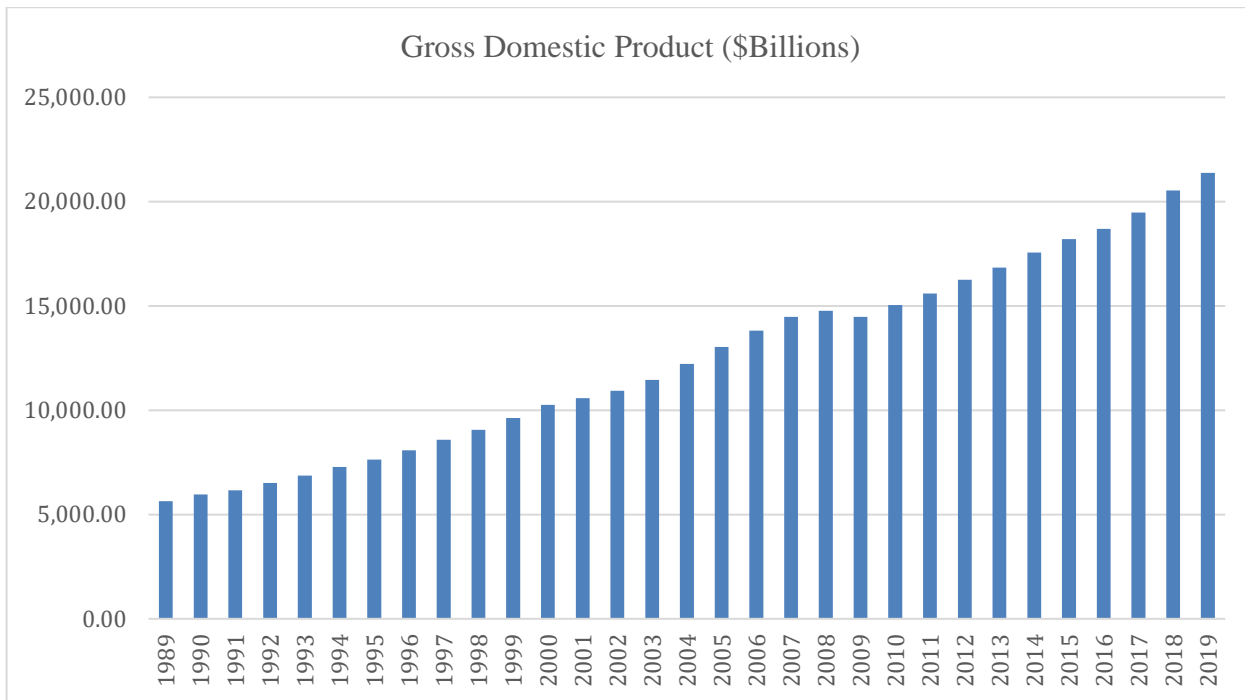


FIGURE 3
U.S. GROSS DOMESTIC PRODUCT DURING 1989-2019



The movements of inflation rates in Figure 2 show that the Federal Reserve (Fed) had effectively used the monetary tools to manage the inflation rates until before the global financial crisis started. However, after the crisis, the inflation rates fluctuated widely compared to the Treasury yields and maturity spread. Figure 3 shows that the U.S. gross domestic product steadily increased over the past decades. The U.S. economic expansion only slowed down after the American subprime mortgage crisis. The Asian financial crisis in 1997 had little or no effect on the GDP.

Long-Run Relationships

This section analyzes the impacts of business characteristics and economic factors on the marketing investment over the entire sample period. Table 2 presents the results from regressions relating advertising expenditures to firm fundamental factors and macroeconomic variables. The dependent variable is the logarithm of the advertising expenditures at the end of the period. The firm characteristic factors consist of earnings, growth opportunity, firm size, and level of leverage. The macroeconomic variables comprise of the short-term and long-term U.S. Treasury rates, and gross domestic product.

Results in columns (1)-(5) are not statistically significant, suggesting that earnings and cash flows are not correlated to the advertising expenditures. There is also no evidence that the amount of cash flow or cash holding can affect a firm's decision to allocate the advertising budget. For firms with a substantial amount of cash, advertising budgeting is not their priority focus. This finding indicates that the affordability method of advertising budgeting does not apply when the firms have fund available. The insignificant coefficients of cash holding and cash flow variables in columns (6)-(7) indicate that firms do not necessarily focus on the marketing strategy when they have cash on hand. In long run, multinational corporations may not be interested in using advertising to stimulate earnings. They prefer distributing the free cash flows to stockholders or allocating their excess cash to invest in other profitable projects.

No significant relationship between market-to-book ratio and advertising budgeting is found. This finding suggests that high-growth firms do not necessarily need to spend a significant amount to promote their business. They would utilize the resources to expand their investments and enhance their position in

the industry. Results in the table also provide strong evidence that firm size plays a major role in firm decisions. The firm's asset value is found to positively increase with the advertising allocation. Larger firms are willing to spend more on the marketing tool that can emphasize the brand recognition and influence new customers.

TABLE 2
REGRESSION RESULTS OF LONG-RUN MODEL

	ADVT						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
EPS	0.028 <i>0.085</i>	0.065 <i>0.089</i>	0.033 <i>0.087</i>				
CFPS				-0.015 <i>0.017</i>	-0.014 <i>0.016</i>		
CASH						-0.841 <i>0.384</i>	-0.865 <i>0.379</i>
GROWTH	0.001*** <i>0.000</i>	0.001*** <i>0.000</i>	0.001*** <i>0.000</i>	0.001*** <i>0.000</i>	0.001*** <i>0.000</i>	0.001** <i>0.000</i>	0.001** <i>0.000</i>
SIZE	0.576*** <i>0.034</i>	0.538*** <i>0.046</i>	0.564*** <i>0.042</i>	0.584*** <i>0.016</i>	0.607*** <i>0.020</i>	1.322*** <i>0.335</i>	1.355** <i>0.331</i>
TLEQ		0.127 <i>0.092</i>				0.002 <i>0.073</i>	
LTDEQ			-0.185 <i>0.385</i>		-0.428 <i>0.521</i>		-0.199 <i>0.276</i>
TBILL3	0.058 <i>0.057</i>	0.052 <i>0.054</i>	0.057 <i>0.058</i>	0.070* <i>0.031</i>	0.083* <i>0.045</i>	0.142* <i>0.077</i>	0.143* <i>0.078</i>
SPREAD	0.028 <i>0.084</i>	0.029 <i>0.082</i>	0.025 <i>0.085</i>	0.007 <i>0.042</i>	0.023 <i>0.059</i>	0.163 <i>0.060</i>	0.161 <i>0.061</i>
GDP		2.189*** <i>0.355</i>	2.243*** <i>0.370</i>				
Adj R-squared	0.518	0.528	0.498	0.450	0.433	0.660	0.662

*Notes: The table reports the coefficients and standard errors. The standard errors are italicized and presented in the row below the coefficient estimates. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.*

During the sample period of 1989-2019, there is no evidence that the marketing investment is determined by the capital structure. Results in Table 2 show nonsignificant coefficients in the *TLEQ* and *LTDEQ* variables, indicating that firms with greater leverage do not tend to spend more heavily on advertising. A high level of debt in the capital structure can place a firm in a risky position, and sometimes can lead to misallocation of assets. Increasing the spending on advertising may not be a good strategy to make the firms feel secure within the industry. For the macroeconomic factors, interest rates do not show a great impact on the marketing investment over the sample period. On the other hand, the gross domestic product plays an important role in determining the budget allocation. The multinational firms tend to

increase the spending on advertising when the economy expands rapidly and limit their spending when the economy experiences slow expansion.

TABLE 3
REGRESSION RESULTS OF SHORT-RUN MODEL

	$\Delta ADVT$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔEPS	0.021 <i>0.030</i>	0.035 <i>0.040</i>					
$\Delta CFPS$			-0.001 <i>0.004</i>	-0.001 <i>0.004</i>			
$\Delta CASH$					-0.320 <i>0.182</i>	-0.279 <i>0.174</i>	-0.346 <i>0.214</i>
$\Delta GROWTH$	0.000* <i>0.000</i>	0.000** <i>0.000</i>	-0.001** <i>0.000</i>	0.000** <i>0.000</i>	0.000** <i>0.000</i>	0.000** <i>0.000</i>	0.000** <i>0.000</i>
$\Delta SIZE$	-1.135* <i>0.641</i>	-1.192* <i>0.676</i>	-1.728** <i>0.653</i>	-1.713* <i>0.966</i>	-0.592 <i>0.567</i>	-0.818 <i>0.679</i>	-0.420 <i>0.449</i>
$\Delta TLEQ$	-0.003 <i>0.005</i>		-0.007 <i>0.003</i>		-0.001 <i>0.001</i>		-0.002 <i>0.001</i>
$\Delta LTDEQ$		-0.006 <i>0.004</i>		-0.008 <i>0.004</i>		-0.007 <i>0.004</i>	
$\Delta TBILL3$	0.025* <i>0.014</i>	0.025* <i>0.013</i>	0.040* <i>0.020</i>	0.038* <i>0.023</i>	0.020* <i>0.012</i>	0.024* <i>0.013</i>	0.026 <i>0.019</i>
$\Delta SPREAD$	0.016* <i>0.009</i>	0.019 <i>0.012</i>	0.030* <i>0.022</i>	0.030* <i>0.014</i>	0.022* <i>0.010</i>	0.023* <i>0.011</i>	0.035 <i>0.031</i>
ΔGDP			-0.001 <i>0.008</i>				-0.006 <i>0.011</i>
Adj R-squared	0.309	0.299	0.319	0.460	0.306	0.320	0.317

Notes: The table reports the coefficients and standard errors. The standard errors are italicized and presented in the row below the coefficient estimates. * indicates significance at the 10% level; ** indicates significance at the 5% level; and * indicates significance at the 1% level.

Short-Run Relationships

This section shows the results of error correction models employed in the estimated short-run effects. The dependent variable in Table 3, $\Delta ADVT$, is the change in advertising spending, measured as the log difference of advertising expenditures between the current period and the previous period. The corporate funds are measured as the log difference of earnings per share (ΔEPS), the log difference of cash flow per share ($\Delta CFPS$), and the log difference of cash ($\Delta CASH$). The change in growth opportunity, $\Delta GROWTH$, is measured as the change in market-to-book ratio between two periods. The increase in firm value, $\Delta SIZE$, is defined as log difference of total assets between the current and previous periods. For the leverage variables, $\Delta TLEQ$ and $\Delta LTDEQ$ represent the change in capital structure of the sample firms. The economic indicators included in the models are defined as change in Treasury rates ($\Delta TBILL$), change in maturity spread ($\Delta SPREAD$), and change in gross domestic product (ΔGDP).

The estimated short-run effects of the change in the explanatory variables on the change in advertising expenditures are presented in Table 3. The increase in funds available on hand are not the main determinants of marketing strategy in short run. The coefficients of ΔEPS , $\Delta CFPS$, and $\Delta CASH$ are not statistically significant. Results also show no evidence that the change in capital structure can influence management decision to allocate funds. On the other hand, the negative coefficients in the $\Delta SIZE$ variable support that when the assets grow at an increasing rate, companies may allocate less budget toward advertising expenditures. In addition, there is evidence that the increase in growth opportunity shows small negative effect on the advertising expenditures. Although the impact is very minimal, it is significant, indicating that multinational firms will spend less on advertising if they predict a greater opportunity for business growth.

For the macroeconomic factors, no relationship between the change in economic expansion and change in advertising budgeting is found. There is evidence that the monetary tools used by the Federal Reserve can affect management decisions in short run. Results show that the change in interest rates can increase the degree of marketing investment. The positive coefficients in the interest rate variables, $\Delta TBILL3$ and $\Delta SPREAD$, are statistically significant at 10% in many models. When the Fed increases the interest rate aggressively, investors will move their investment to safer securities, like bonds and other Treasury securities. This will lead to the rapid decrease in stock prices and consumer spending. Management may decide to increase the investment in advertising expenditures, in an attempt to use the marketing strategy to increase the sales.

In order to investigate whether different characteristics of multinational firms and macroeconomic factors affect management decision to allocate funds after the crises, the dataset is broken down into two subsamples. The first set covers the period from after the Asian financial crisis until the global financial crisis (1997-2007). The second set covers the recovery period from after the global financial crisis until the pre-COVID-19 pandemic (2008-2019). The regression analyses are repeated on those relevant subsamples, and the results are presented in the next sections.

Before the Asian Financial Crisis

There is an interesting finding to note here. Before the Asian financial crisis, smaller firms are heavy spenders on advertising compared to their counterparts. The results are shown in Table 4. The negative coefficients of *SIZE* support that smaller firms tend to spend more liberally on advertising expenditures. Since larger corporations are well-established and have low failure rate, they are not interested in allocating a large amount of funds to promote the businesses. The relationship between marketing investment and total assets is found to be significant in all regression models. This finding is contrary to the results after the crises that will be presented in the later sections.

Recovery Period From After the Asian Financial Crisis Until the Global Financial Crisis

This section provides empirical analyses of the relationship between advertising expenditures and explanatory variables during 1997-2007. The Asian financial crisis began in Thailand and affected many countries in East and Southeast Asia. The Thai baht collapsed led to a domino effect, spreading the severe economic turmoil to other countries in the region. During this period, many countries faced sharp declines in currency values and stock markets. Multinational corporations that operated in those emerging markets would be affected by the economic crisis greatly if they did not have risk management plans in place. Their subsidiaries in those countries could suffer the loss due to the weaknesses in Asian financial systems and sharp declines in currencies. The translation and transaction exposures brought by the crisis could be significant.

However, large multinational companies usually diversify their financing, investment, and productions to many regions. The sample firms are multinational corporations that report the use of derivatives to protect against the currency fluctuations. They have flexible strategies when doing business oversea, and employ derivatives tools, such as currency options and swaps, to manage foreign exchange risk. In addition, those countries in economic turmoil went through financial and fiscal reforms after the crisis and were provided financial support by the International Monetary Fund (IMF) to help recover. Thus, it is expected that the crisis occurred in those foreign countries should have minimal effect on the sample firms.

TABLE 4
REGRESSION RESULTS OF LONG-RUN MODEL (BEFORE THE 1997 FINANCIAL CRISIS)

	ADVT					
	(1)	(2)	(3)	(4)	(5)	(6)
EPS	0.148	0.031				
	<i>0.220</i>	<i>0.192</i>				
CFPS			0.109			
			<i>0.081</i>			
CASH				0.883	0.177	
				<i>0.504</i>	<i>0.785</i>	
GROWTH	0.000	0.000	0.000	0.000	0.000	0.000
	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.000</i>	<i>0.001</i>	<i>0.001</i>
SIZE	-0.771***	-1.170***	-0.702**	-6.760**	-1.252*	-1.111**
	<i>0.122</i>	<i>0.172</i>	<i>0.141</i>	<i>2.848</i>	<i>0.595</i>	<i>0.495</i>
TLEQ		-1.886			-0.580	
		<i>1.154</i>			<i>1.194</i>	
LTDEQ						-3.880
						<i>4.945</i>
TBILL3	-0.172	-0.341	-0.061	-0.144	-0.387	-0.168
	<i>0.138</i>	<i>0.079</i>	<i>0.236</i>	<i>0.081</i>	<i>0.208</i>	<i>0.181</i>
SPREAD	-0.156	-0.344	-0.170	-0.246	-0.369	-0.125
	<i>0.266</i>	<i>0.177</i>	<i>0.125</i>	<i>0.119</i>	<i>0.118</i>	<i>0.169</i>
GDP				7.228**		
				<i>2.729</i>		
Adj R-squared	0.737	0.836	0.722	0.777	0.722	0.694

*Notes: The table reports the coefficients and standard errors. The standard errors are italicized and presented in the row below the coefficient estimates. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.*

Table 5 presents descriptive statistics of advertising expenditures and its explanatory variables from after the Asian financial crisis until the American subprime mortgage crisis. The means of most firm characteristic data are lower than those in Table 1. The average amounts of advertising allocation and cash flows had decreased during this period. The firms held less cash on the balance sheet. They were downsizing, but their growth rates were higher. The average market to book ratio had increased to 4.78. The GDP continued to increase, while the U.S. treasury yields continued to drop. Based on the graph in Figure 1, although the difference between the short-term and long-term interest rates had dropped to the average of 1.72%, the U.S. bond yields had decreased sharply during 2002-2004. Many firms had increased the debt financing in their capital structure. They issued corporate bonds as their sources of financing. The U.S. economy showed strong expansion during this period.

The regression results of advertising expenditures on earnings, growth opportunity, firm size, leverage, and macroeconomic variables during 1997-2007 are presented in Table 6. Large multinational corporations usually maintain greater resources and better diversify revenue streams. After the Asian financial crisis, they could easily allocate funds to promote their businesses. Their established market positions make them

more resilient to economic downturns and other challenges. The growth opportunity is found to be one of the major determinants of marketing investment during this sample period. The significant results in the table indicate that high growth firms tend to heavily invest in advertising. The capital structure and corporate earnings show no impact on management decision to allocate funds. There is no evidence of the affordability method of advertising budgeting. The non-statistically significant coefficients of CASH suggest that advertising is not their priority focus when companies have fund available. They may decide to spend the excess cash on other profitable investment projects, pay off their debts, repurchase the securities, or return the free cash flow to investors.

TABLE 5
DESCRIPTIVE STATISTICS (AFTER THE 1997 FINANCIAL CRISIS)

	ADVT	EPS	CFPS	CASH
Mean	6.086	1.806	1.979	7.719
Maximum	6.221	1.942	2.109	8.311
Minimum	5.922	1.675	1.848	6.985
Std. Dev.	0.094	1.134	1.300	0.468
	GROWTH	SIZE	TLEQ	LTDEQ
Mean	4.779	9.690	3.430	0.731
Maximum	16.130	12.340	3.754	0.835
Minimum	2.258	5.963	3.218	0.677
Std. Dev.	3.779	0.747	0.165	0.052
	TBILL	SPREAD	GDP	
Mean	3.617	1.722	9.317	
Maximum	5.815	3.911	9.580	
Minimum	1.000	0.059	9.057	
Std. Dev.	1.650	1.432	0.171	

While there was a crisis in another part of the world, the U.S. economy still showed a sign of strong expansion, and the multinational companies still had enough assets on hand to spend on stimulating their businesses and boosting the sales. The interest rates fluctuated during 1997-2007. The yields had been increased during 1997-2000, decreased during 2001-2004, and gradually increased during 2004-2007. Based on monetary policy, the Federal Reserve cut the interest rates to stimulate investment in the stock markets, encourage businesses to expand, and increase consumer spending. When the interest rates are low, firms only need to focus on their production to meet the demand. They need not to worry about ensuring their brand stands out among competitors. However, when the Fed raises the rates to control the inflation and prevent the economy from growing too fast, management may decide to invest more in advertising to attract customers and capture their buying power. The coefficients in the interest rate variables are positive and significant. Since increased advertising can lead to more visibility in the market and capture a larger market share, when there were a series of increase in interest rates, those multinational corporations would allocate more funds toward the advertising expenditures to ensure their brand recognition and stay competitive.

TABLE 6
REGRESSION RESULTS OF LONG-RUN MODEL (AFTER THE 1997 FINANCIAL CRISIS)

	ADVT					
	(1)	(2)	(3)	(4)	(5)	(6)
EPS	0.050	0.076				
	<i>0.075</i>	<i>0.092</i>				
CFPS			0.008	0.000	0.005	
			<i>0.013</i>	<i>0.017</i>	<i>0.015</i>	
CASH						0.089
						<i>0.263</i>
GROWTH	0.015***	0.016**		0.015**	0.016**	0.015***
	<i>0.004</i>	<i>0.005</i>		<i>0.005</i>	<i>0.005</i>	<i>0.004</i>
SIZE	0.432***	0.408***	0.830***	0.444***	0.403***	0.525**
	<i>0.016</i>	<i>0.046</i>	<i>0.165</i>	<i>0.024</i>	<i>0.039</i>	<i>0.233</i>
TLEQ			0.016		0.164	
			<i>0.081</i>		<i>0.086</i>	
LTDEQ		0.287				
		<i>0.564</i>				
TBILL3	0.312***	0.318***		0.293***	0.265***	0.269***
	<i>0.023</i>	<i>0.025</i>		<i>0.027</i>	<i>0.034</i>	<i>0.063</i>
SPREAD	0.288***	0.290***	0.031**	0.262***	0.232***	0.239***
	<i>0.034</i>	<i>0.038</i>	<i>0.015</i>	<i>0.049</i>	<i>0.049</i>	<i>0.062</i>
GDP			1.564***			
			<i>0.194</i>			
Adj R-squared	0.617	0.553	0.694	0.594	0.673	0.604

*Notes: The table reports the coefficients and standard errors. The standard errors are italicized and presented in the row below the coefficient estimates. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.*

Recovery Period After the American Subprime Mortgage Crisis

Multinational firms are generally well-diversified in both financing and investment and have risk management policies in place when doing foreign direct investment. Since they employ derivatives tools to mitigate the foreign currency risks, when there is crisis arose in foreign markets, the translation exposure would be minimal. However, when the crisis occurs in domestic market, managing risks can be challenging. The systematic risk will be difficult to avoid. This section investigates the relationship between advertising spending and explanatory variables during the recovery period following the global financial crisis in 2008 until the pre-COVID-19 pandemic outburst. The American subprime mortgage crisis resulted from the housing market collapse, bank failures, and a sharp decrease in employment rate significantly damaged the U.S. economy. Figure 3 shows that the U.S. economy had experienced a slowdown significantly in 2008 and 2009, and gradually corrected itself to continue the expansion in 2010. Based on the graphs in Figure 1 and Figure 2, the Federal Reserve decreased interest rates in a series overtime after the crisis and kept it low until 2014. Firms began to recover gradually and contributed to economic expansion. The long recovery process was slow across industries.

Table 7 displays descriptive statistics of the variables during 2008-2019. Companies have to adjust to the new challenges and seek to recover the losses. They would minimize unnecessary expenses. However, advertising expenditures are considered important during the economic downturns because consumer spending usually declines sharply. Consumers would increase saving and reduce their purchases, resulting in the decrease in investment activities and product demand. To retain their customer base, firms need to invest more in advertising to help maintain brand awareness and attract customers when making purchasing decisions. The average advertising expenditures after the global financial crisis is higher than those in the prior period. The means of earnings and cash flow per share are also greater than before, suggesting that companies have employed good business strategies during this long recovery period. On average, the sample firms increased the level of liquid asset holdings and kept more cash on hand. During the economic downturn, the increased cash holdings can be influenced by risk management strategies and the need to smooth their operations. Businesses may increase their cash holdings to ensure they have funds to take advantage of investment opportunities that may arise in volatile markets.

TABLE 7
DESCRIPTIVE STATISTICS
(AFTER THE 2008 AMERICAN SUBPRIME MORTGAGE CRISIS)

	ADVT	EPS	CFPS	CASH
Mean	6.332	2.044	2.233	8.758
Maximum	6.447	2.211	2.349	8.891
Minimum	6.175	1.786	2.074	8.706
Std. Dev.	0.092	1.504	1.517	0.064
	GROWTH	SIZE	TLEQ	LTDEQ
Mean	3.757	10.108	2.682	0.694
Maximum	52.630	12.355	3.683	0.901
Minimum	1.878	8.366	2.306	0.567
Std. Dev.	18.405	0.587	0.434	0.109
	TBILL	SPREAD	GDP	
Mean	0.225	3.260	9.700	
Maximum	1.218	4.037	9.836	
Minimum	0.020	2.285	9.580	
Std. Dev.	0.382	0.600	0.093	

The sample firms also made change to their capital structure. The data in Table 7 showed that they reduced the degree of leverage. They kept lower debt to equity ratio and decreased the long-term debt financing after the crisis. Although, the growth was lower than the prior period, the average size of the sample firms was larger. The monetary policies used by the Federal Reserve have helped multinational firms to overcome the economic challenges and expanded the economy. The interest rates were kept at a very low level compared to before the mortgage crisis, while the average GDP increased during this sample period.

The relationship between advertising expenditures and the dependent variables after the American subprime mortgage crisis is presented in Table 8. Earnings and cash flows show no significant link to the firm's marketing decision. After the crisis, companies have to reshape their strategic plans. The

economic downturn and decrease in consumption demand led to layoff, reduced production, and cutting back on expenses. Businesses decided to hold greater amounts of cash on hand and reduce unnecessary costs. The coefficients in the CASH variable show no significant relation with the advertising allocation, indicating that the affordability method of advertising budgeting does not hold true during the economic slowdown or recession. Multinational firms must reassess the risks and put focus on recovery. Even high-growth firms prefer to increase their savings and reduce risky investments. The regression results show no impact between growth opportunity and advertising budgeting after the crisis. This finding suggests that high potential firms with profitable projects do not rely on marketing spending to boost consumer demand and loyalty.

TABLE 8
REGRESSION RESULTS OF LONG-RUN MODEL
(AFTER THE 2008 AMERICAN SUBPRIME MORTGAGE CRISIS)

	ADVT					
	(1)	(2)	(3)	(4)	(5)	(6)
EPS	-0.022 <i>0.119</i>	-0.254 <i>0.293</i>				
CFPS			0.001 <i>0.011</i>	0.000 <i>0.006</i>		
CASH					-0.200 <i>0.149</i>	-0.328 <i>0.280</i>
GROWTH	0.001 <i>0.001</i>	0.000 <i>0.001</i>	0.001 <i>0.001</i>	0.000 <i>0.001</i>	0.001 <i>0.001</i>	0.000 <i>0.001</i>
SIZE	0.619*** <i>0.015</i>	0.668*** <i>0.066</i>	0.618*** <i>0.010</i>	0.638*** <i>0.020</i>	0.781*** <i>0.127</i>	0.895** <i>0.243</i>
TLEQ		-0.521 <i>0.657</i>				
LTDEQ	-0.338 <i>0.205</i>			-0.426 <i>0.317</i>		-0.217 <i>0.312</i>
TBILL3	-0.061** <i>0.018</i>	-0.051* <i>0.021</i>	-0.066* <i>0.032</i>	-0.039* <i>0.026</i>	-0.078** <i>0.026</i>	-0.074** <i>0.027</i>
SPREAD	-0.092** <i>0.030</i>	-0.073* <i>0.029</i>	-0.099* <i>0.045</i>	-0.074* <i>0.030</i>	-0.095** <i>0.032</i>	-0.081** <i>0.030</i>
GDP	2.399*** <i>0.338</i>					
Adj R-squared	0.798	0.798	0.812	0.864	0.821	0.808

*Notes: The table reports the coefficients and standard errors. The standard errors are italicized and presented in the row below the coefficient estimates. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.*

Firm value continues to show a significant impact on the marketing spending. Smaller businesses may be struggling more than their counterparts after the crisis. Large multinational corporations are usually well-diversified in both financing and investment. They have many resources available and do not need to spend

generously on advertising to maintain their market share. It is easier for them to allocate a small amount of funds toward advertising expenditures to maintain their position and keep their visibility in the market.

There is no evidence that the financing structure is related to the pattern of marketing spending. During the challenge period, companies would not spend liberally on expenditures. Their main concerns would be to avoid asset misallocation and reduce the risks in order to survive the crisis. They would prefer to reduce the amount of debt with high interest rates and extend the repayment period for debts with low interest rates. The nonsignificant coefficients in the debt variables indicate that firms do not necessarily invest in marketing when they want to improve their financial stability. There is evidence that gross domestic product is positively correlated to the marketing expenses. When the economy shows signs of recovery and better expansion, companies are willing to spend more on advertising. Results also show that the lower the interest rates, the greater advertising expenditures. When the interest rates in the economy is high, firms tend to reduce the spending. The inverse relationship between the U.S. Treasury rates and advertising expenditures is statistically significant, indicating that the marketing investment can be affected by the systematic risk. The negative coefficient in the maturity spread variable also supports this finding. When the cost of money decreases, firms are more willing to allocate more funds to promote their business and capture the demand.

The regression results suggest that businesses react differently to the crisis arose in domestic market compared to the one arose in another part of the world. Although multinational firms are flexible and responsive to the dynamic market and government policies, it is harder to avoid the damage when the crisis arises in their home country. They need to adjust their strategies to mitigate the market risk that directly affects their stock prices in domestic market.

CONCLUSION

Advertising is one of the tools that businesses can use to generate more interest in their products and services. It can lead to increased profits and firm value. This paper examines management decisions in allocating the marketing expenses after the Asian financial crisis in 1997 and the American subprime mortgage crisis in 2008. Firms are expected to be flexible and have different advertising budgeting policies in dynamic economic conditions. There is no evidence to support the affordability method of advertising budgeting. Multinational corporations do not allocate funds based on the excess cash holdings, nor set aside a larger amount of cash than necessary for marketing expenses. To survive the economic downturn, they must be careful in asset management. If the agency conflict between management and stockholders is presented during the crisis, the misallocation can easily lead to business failure. Results show that, during the times of economic recovery, management does not use the marketing tool to increase their power and control.

The advertising budget allocation is largely determined by the firm size and macroeconomic factors. Consistent and increased advertising spending can benefit businesses. It can lead to more visibility in the market, encourage consumer decision, attract investors, and increase stock performance. Before the financial crisis occurred in East and Southeast Asia, smaller firms tended to set a larger budget to promote their businesses. This behavior has changed over the past decades. Those firms learned to increase savings and reduce risky investments to improve their financial health during the economic slowdown. Results suggest that the firms with greater amount of cash prefer to invest their assets in other profitable projects or return the cash flows to investors. Only large firms continue to allocate funds for marketing investment to enhance their position in the industry. The Federal Reserve's monetary tools, like interest rate adjustments, are also found to greatly affect management decisions. Companies revise their marketing and investing approaches based on the overall market conditions and economic policies. To minimize the loss after the economic downturn, they are willing to adjust their asset allocation policies in response to changes in interest rates.

This study is a preliminary effort to show that multinational firms are flexible and adjust their strategies based on the reactions of market and government. It helps to understand the relationship between marketing investment and macroeconomic factors and contributes to a growing line of research that documents the economic effect on management decisions. Economic conditions play a significant role in corporate

decisions, especially in the absence of agency problems. Businesses need to adapt their investment strategies to compete effectively for market share. This study makes a significant contribution to literature by examining the corporate behavior after the crises arose domestically and overseas. Future research can focus on other characteristics and measurements of factors that can affect the investment decisions.

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