Is Free Cash Flow Helpful in Investment Decisions? The Case of the U.S. Materials Industry Sector

Mostafa M. Maksy
Kutztown University of Pennsylvania

The purpose of this study is to identify the accounting definition of free cash flow (FCF) that is the most relevant to investors in the materials companies. Using correlations and multiple regression analysis on a sample of 12,121 observations covering the 30-year period from 1988 to 2021, the author concludes that the FCF that has the most significant association with stock price changes of materials companies, after controlling for many factors that may affect stock prices, is the one defined as cash flow from operations less cash flow for capital expenditures less cash outflow for preferred stock dividends. The author recommends that investors contemplating investing in materials companies choose companies with high FCF computed using this definition. The author further recommends that materials companies that wish to voluntarily disclose FCF in their annual report should use this definition of FCF.

Keywords: free cash flow, investment decisions, materials industry sector

INTRODUCTION

Free Cash Flow (FCF) is a useful piece of information for investors to make investing or divesting decisions because it is difficult to manipulate whereas net income (NI) may be manipulated. Also, companies cannot pay their bills (for example for salaries, construction of a new factory, or dividends) with NI. All these have to be paid in cash. Thus, it may be argued that a business's ability to generate cash is what really matters. NI, earnings per share (EPS), and return on investment (ROI), which are computed based on accrual accounting, are important metrics of measuring a company's profitability and are used by many to make investment decisions. However, the income statement (I/S), which reports NI and EPS, spreads out the cash spent on long-term investments over time. So, if a company, like Apple, buys $1 billion in computer equipment, the expense is spread out over 3-5 years on its I/S in the form of depreciation. However, unless Apple gets the equipment and pays for it in bonds or stocks (i.e., a non-cash transaction) it will have to pay for the computer equipment in cash. Thus, while the I/S smooths out a business's use of cash over time, the Statement of Cash Flows (SCF), from which FCF is calculated, offers no such smoothing benefit.

Maksy (2016) observed that prior research is not conclusive as to whether FCF is associated with stock prices, i.e., whether it is relevant to equity valuation. Maksy (2017) noted that the accounting literature has a wide variety of FCF definitions, and he used a sample comprising the U.S. Information Technology sector over 30 years, to identify which FCF definition is value relevant to that sector. He concluded that the FCF computed as "cash flow from operations less capital expenditures less preferred stock dividends" is the most significantly associated with stock price changes. While Cash Flow for Capital Expenditures (CFCE)

represents most (and sometimes all) CFI for many companies, some companies' CFI is much larger than CFCE. Given that industry sectors vary significantly in terms of their CFCE and CFI activities, the aim in this paper is to identify which FCF definition, if any, is the most value-relevant for the materials industry sector (MIS) companies. Is it the same as the one that is most value-relevant for the information technology companies? Or is it a totally different?

This study aims to provide two contributions to the literature. First, if FCF is value relevant for MIS companies, knowing which definition is the most value relevant for these companies would help investors in that sector make better decisions as they would use that definition of FCF in making their investment decisions. If none of the FCF definitions is value-relevant, then investors may not need to waste their time to include FCF in their decision-making process. Second, if there is a specific definition of FCF that is most value-relevant to MIS companies, there are implications for financial accounting standard setters. While the Financial Accounting Standards Board (FASB) requires companies [in Statement of Financial Accounting Standard (SFAS) No. 95 as originally issued in 1987 and as converted to Topic 230 in the FASB Codification Project], to report CFO on the SCF, it has so far discouraged companies from reporting CFO per share. The FASB is concerned that requiring, or even encouraging, companies to report CFO per share may be construed by some that it is moving away from accrual-basis accounting toward cash-basis accounting. Thus, it requires companies to report EPS, which is based on accrual accounting, on the face of the I/S but discourages companies from reporting CFO per share on the face of the SCF or anywhere else in the annual report. The results of this study might be considered by the FASB if it wants to engage in a project to decide whether to require MIS companies to report a specific definition of FCF (but not FCF per share) in the body of the SCF or in the supplementary disclosures at the bottom of the SCF, together with cash paid for income taxes and cash paid for interest expense. Or the FASB might just consider whether to prohibit MIS companies from voluntarily disclosing FCF of whatever definition they prefer or require those companies to use a specific definition of FCF to enhance comparability. Companies that voluntarily disclose FCF information use a wide variety of definitions of FCF (apparently, each company is using the definition that shows the highest amount of FCF). These companies, on average, are less profitable and more leveraged than other firms in their own industries (Adhikari and Duru, 2006). Having all companies, in a given industry sector, reporting FCF that is calculated in the same way would enhance comparability of accounting information across firms in that sector (Maksy, 2016 and 2017).

The Basic Materials economic sector consists of companies engaged in the extraction and primary refinement of chemicals, metals, nonmetallic and construction materials; forest, wood and paper products; and containers and packaging products. Certain chemical producers, and certain energy sources (such as natural gas, crude oil, and coal either in their natural state or as refined products such as gasoline) are considered basic materials. The more refined versions are included due to their significance in basic industry operations. Although they go through significant processing, they are critical to almost every type of industry. Some of the most common materials covered within the basic materials sector include any mined materials, such as metals and ore, as well as forestry products, such as lumber.

The basic materials sector is sensitive to changes in the business cycle. Because companies in this sector supply materials for construction for example, they do well in a strong economy. Also, the sector can be affected by shifts in the housing market as many produced raw materials are components of construction projects. For example, if new housing development slows, the demand for lumber products may also decrease. Furthermore, the sector is sensitive to supply and demand fluctuations because the price of raw materials, such as gold or other metals, is largely demand driven. In general, the basic materials sector is subject to the law of supply and demand in the same way as consumer goods. If the demand for associated consumer goods drops, the demand for the raw materials involved in the production of those goods also drops.

This sector is selected for the study because it represents a major part of the economy. Furthermore, as Maksy (2016 noted, comparability in one specific sector is one of the enhancing qualitative characteristics of useful financial information as stated in FASB's Statement of Financial Accounting Concepts (SFAC) No. 8. The remaining sections of the paper cover the literature review, sample, statistical results, and

conclusions of the study, respectively. The final section provides study limitations and some suggestions for further research.

LITERATURE REVIEW

The accounting literature has many definitions of FCF (Maksy 2016). FCF is defined differently from textbook to textbook, professional article to professional article, academic article to academic article, from company to company (and some companies change their definition of FCF from time to time), and from all these to the popular press. A case in point, Mandalay Resort (formerly known as Circus Circus) was one of the first companies to report FCF information in its 1988 annual report. Over the years, it has changed its FCF definition. In 1988 it defined it as Operating Income (OI), but in 2000, it added back pre-opening expenses, abandonment loss, depreciation and amortization expense (D&A), interest, dividend, and other income, as well as proceeds from disposal of equipment and other assets. Coca-Cola defined FCF as CFO less CFI prior to 1999, but in 1999 it changed the definition to CFO less "acquisitions and investments." That change in definition increased its FCF in 1999 by almost $2 billion. Different definitions of FCF are reported by popular magazines and investment advisory service organizations such as Money, Forbes, the Motley Fool, Value Line, and InvestLink (Mills, et. al, 2002). Maksy (2016) reported different definitions of FCF in textbooks such as Subramanyam and Wild (2009) and Kieso, Weygandt, and Warfield (2013). The FCF definition in Kieso, Weygandt, and Warfield (2016) remains the same (CFO - CFCE – Total Dividends) as in the 2013 edition of that most adopted Intermediate Accounting book by U. S. colleges and universities.

A search for "free cash flow definition" on Google produced about 3.46 million entries for this title, the first of which is "Definitions of Free Cash Flow on the Web" (Maksy 2016). Table 1 presents the 15 definitions under this title, together with the web address associated with each definition. It is interesting to note that every definition is different. Adhikari and Duru (2006) report that of 548 firms of their sample that voluntarily reported FCF information, 283 (or 51.6%) defined FCF as CFO – CFCE; 117 (or 21.4%) defined FCF as CFO – CFCE – Total Dividends; and 64 (or 11.7%) defined FCF as CFO – CFI. The remaining 84 firms (or 15.3%) defined FCF in four different other ways.

Previous research studies about FCF present conflicting results as to whether FCF is positively associated with stock prices. Some studies report no significant association or even negative association and some report significant positive association. For example, Penman and Yehuda (2009), using a definition of FCF as CFO less cash investments, find negative association and state that "a dollar more of FCF is, on average, associated with approximately a dollar less in the market value of the business." They also find that this FCF definition has no association with changes in the market value of the equity. Moreover, after they controlled for the cash investment component of FCF, they find that CFO also reduces the market value of the business dollar-for-dollar and is unrelated to the changes in market value of the equity. Additionally, GuruFocus.com, a website that tracks market insights and news of investment gurus, published two research studies, Gurufocus (2013a and 2013b), concluding that earnings and book values are significantly correlated with stock prices but FCF, defined as CFO – CFCE and acquisitions, is not. On the other hand, companies with greater FCF, defined as CFO less CFCE, and greater growth opportunities, have higher value prices and their FCF is positively associated with stock returns (Habib, 2011). Furthermore, Shahmoradi, (2013), using the same definition of FCF (CFO – CFCE) and a sample of listed companies on Tehran Stock Exchange between 2002 and 2011, reported a relationship (significant at the .05 level) between FCF and stock returns.

The literature review presented above, especially the accounting literature, indicates that FCF is defined in so many different ways. The objective of this study is to determine which one of these definitions, if any, is most correlated with (and, thus, is hypothesized to be the best predictor of) stock price changes for the MIS of the U.S.

Maksy (2016 and 2017) proposed his own definition of FCF which is CFO less Capital Expenditure required to Maintain Productive Capacity (CEMPC) less PSD. However, he used eight other most commonly used definitions of FCF to determine which one is most significantly associated with stock price

changes. To identify which FCF definition is most significantly associated with stock price changes of MIS companies, the author will use the same nine definitions used in Maksy (2016 and 2017) as listed below:

FCF1 = CFO - CEMPC
FCF2 = CFO - CFCE
FCF3 = CFO - CFI
FCF4 = CFO - CEMPC - PSD
FCF5 = CFO - CFCE - PSD
FCF6 = CFO - CFI – PSD
FCF7 = CFO – CEMPC - TD
FCF8 = CFO – CFCE – TD
FCF9 = CFO – CFI - TD

where: TD = Total Dividends paid on common and preferred stock, and the other abbreviations are as described previously.

FCF2 is the most commonly used FCF definition in the financial press and the web, and FCF8 is Standard & Poor's definition and is reported directly in its COMPUSTAT database from which the study sample was collected. Also note that the second three FCF definitions (FCF4 to FCF6) are the same as the first three FCF definitions (FCF1 to FCF3) except that PSD is subtracted in each definition. Similarly, the third three FCF definitions (FCF7 to FCF9) are the same as the first three FCF definitions (FCF1 to FCF3) except that TD is subtracted in each definition.

The change in the stock price per share (ΔSPPS) may be affected by changes in sales per share (ΔSPS), earnings per share (ΔEPS), dividend per share (ΔDPS), and book value per share (ΔBVPS). For this reason, all these variables are included in the model so they can be controlled for to show the effect of change in FCF per share (ΔFCFPS) on ΔSPPS. Moreover, to control for the size of the firm, the natural logarithm of total assets (*lnta*) and the natural logarithm of total sales (*lnsale*) are included in the model. Furthermore, the author controls for year-end fixed effects. Thus, the proposed model as reported in Maksy (2016 and 2017) is as follows:

$$\Delta SPPS = B_0 + B_1\Delta SPS + B_2\Delta EPS + B_3\Delta DPS + B_4\Delta BVPS + B_5\Delta FCFPS_{1\text{-}9} + B_6 lnsale + B_7 lnat + €.$$

ΔFCFPS is computed as follows: $FCFPS_t - FCFPS_{t-1}$ where $FCFPS1_t$ = FCF1/weighted average number of common shares outstanding during year t. This weighted average number of common shares is computed by dividing (NI – PSD) by EPS for year t. The same rule applies to all nine definitions of FCFPS (FCFPS1 through FCFPS9). Appendix A provides full definitions of the model variables.

THE STUDY SAMPLE

All MIS companies listed in COMPUSTAT for the 34-year period 1988 to 2021 are included in the sample. All firm year observations that have missing variables are eliminated which resulted in a final sample of 12,121 observations. The study period starts from 1988 because SFAS 95 was issued in 1987 (however, all FASB SFASs, including SFAS 95, have been superseded in 2009 when the FASB Codification project became effective and the SCF is now under Topic 230 in the FASB Codification), which requires companies to disclose CFO. Since the model uses the changes from year to year, 1988 observations will represent the changes from 1987 to 1988 data and all other years observations are derived in a similar manner. The study period ends in 2021 because this is the last year with available data on COMPUSTAT at the time of collection. As Maksy (2016 & 2017) noted, one of the years of the study period, 2008, was a very abnormal year as total market indexes took a big dive because of the world's financial crisis that started during that year. During 2008, the Dow Jones Industrial average lost 31 percent of its value (but at one point, in November of that year, it was down 39 percent). Also, the NASDAQ index lost 39 percent (but in November 2008 it was down 46 percent). Similarly, the S&P 500 Cash Index lost 36 percent (but in November 2008 it was down 43 percent). It is possible that, because of that abnormality, the change in stock prices during 1988 was affected by psychological factors much more so than by financial

factors. Because of that possibility, the author ran the model using a sample of observations ending in 2007 and ran it another time using a sample that excludes 2008 observations. The results from these different samples were not significantly different from the results based on the study entire sample from 1988 to 2021.

STATISTICAL RESULTS

Pearson correlation coefficients for all the study and control variables are presented in TABLE 2. As that TABLE indicates, six of the FCF definitions (FCF2, 3, 5, 6, 8, and 9) have negative associations with changes in stock price (*Δspps*) at the 5% significance level. The other three FCF definitions (FCF1, 4 & 7) do not have statistically significant association with stock price changes. Among the control variables, changes in sales per share (*Δsps*) *and* changes in earnings per share (*Δeps*) are significantly associated with changes in stock price (*Δspps*) at the 5% significance level. However, changes in book value per share (*Δbvps*) is negatively associated with *Δspps* at the 5% significance level. Changes in dividends per share (*Δdps*), natural log of sales (*lnsale)* and natural log of total assets *(lnat)* are not significantly associated with *Δspps.* However, *Δsps* is significantly and positively associated and *Δdps* is significantly and negatively associated with all definitions of FCF at the 5% level of significance. On the other hand, *Δeps* is positively and significantly associated with six definitions of FCF (FCF1, 2, 4, 5, 7, and 8) and negatively and significantly associated with the other three FCF definitions (FCF3, 6 and 9). *Δbvps* is negatively and significantly associated with six FCF definitions (FCF1- 6), positively and significantly associated with one definition (FCF7) and has no statistically significant association with the remaining two FCF definitions (FCF8 & 9). *lnsale* and *lnat* are not significantly associated with any of the FCF definitions suggesting that these variables would be appropriate controls.

TABLE 2 correlations presented some interesting results which is further validated in a multivariate framework shown in TABLE 3 presenting regression coefficients for nine models by including one FCF definition at a time in the model. Besides the control variables specified in the model, the author also includes year fixed effects. These fixed effects control for heterogeneity at the year level that may not be captured by the set of controls. As TABLE 3 indicates, six FCF definitions (FCF1, 3, 4, 6, 7 and 9) have positive associations with *Δspps* at the 1% significance level after controlling for other determinants of changes in stock price. The other three FCF definitions (FCF2, 5 and 8) have negative associations with *Δspps* at the 1% significance level after controlling for other determinants of changes in stock price. Among the control variables, *Δsps* and *Δeps* are positively associated but *Δdps* and *Δbvps* are negatively associated with *Δspps,* and these associations are statistically significant at the 1% level across all FCF definitions. As under the univariate correlations, *lnsale* and *lnat* are not statistically significantly associated with any of the FCF definitions suggesting that these variables would be appropriate controls.

As stated above, TABLE 3 indicates that six FCF definitions have positive associations with *Δspps* at the 1% significance level. However, the coefficients of association are highest under three of the nine definitions of FCF (FCF1, 4 and 7). These three definitions of FCF that have the highest associations with changes in stock prices have one thing in common: they all include CEMPC as a deduction from CFO. That is the case whether CEMPC alone is deducted (FCF1), CEMPC and PSD are deducted (FCF4), or CEMPC and TD are deducted (FCF7). This seems to suggest that PSD and TD have very negligible effect, if any, on stock price changes of MIS companies. Of these three FCF definitions, FCF4 (CFO – CEMPC –PSD) has a little bit more significant association (.720 versus .714, according to the t-statistic) with stock price changes than the other two.

CONCLUSIONS

In light of the above statistical results, the author concludes that FCF4 (CFO – CEMPC – PSD) is the most value-relevant definition of FCF for MIS companies. It is interesting to note that the most commonly used definition in the financial press and the web (FCF2) and Standard & Poor's definition reported directly in its COMPUSTAT database (FCF8) are negatively and significantly associated with stock price changes.

The author does not want to go as far as to recommend that the standards setters, particularly the FASB, should require MIS companies to disclose FCF4 definition in the body of the SCF, or at its bottom, before a more extensive body of research is produced in support of this idea. At this time, the author recommends that MIS companies (that *voluntarily* disclose FCF in their annual reports) should, at the very least, use only the FCF definition identified by this study.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Most research studies are subject to some limitations and this study is no exception. By far, the most important limitation of this study is the possibility that the study model did not include other variables that could have affected stock price changes. When a statistical model does not include all possible variables, the combined effect of those other possible variables is represented by the error term $\sum$ in the model. While the author added year fixed effects, which should help mitigate some concerns, they do not eliminate all concerns regarding unobservable explanatory variables. One other limitation of the study is the possibility that other definitions for FCF which may be value-relevant, have not been included in the study. The author tried to develop as comprehensive a list of FCF definitions as possible, however, other FCF definitions may possibly exist.

For future research, the author suggests that the study be replicated using other variables that could possibly have some effect on stock price changes in addition to the variables included in this study model. A second suggestion is to include other definitions of FCF that are not tested in this study. A third suggestion is to investigate whether a trading strategy could be developed shorting stocks of MIS companies which have the greatest negative change in one or more measures of FCF over the prior year.

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APPENDIX A: VARIABLE DEFINITIONS

Δspps	Change in stock price between the end of the current fiscal year and the end of the prior fiscal year.
Δfcfps1	Change in the difference between cash flow from operations (CFO) and depreciation and amortization expense (D & A) over the current fiscal year.
Δfcfps2	Change in the difference between CFO and cash flow for capital expenditures (CFCE) over the current fiscal year.
Δfcfps3	Change in the difference between CFO and cash flow for investing activities (CFI) over the current fiscal year.
Δfcfps4	Change in CFO minus D & A minus preferred stock dividends (PSD) over the current fiscal year.
Δfcfps5	Change in CFO minus CFCE minus PSD over the current fiscal year.
Δfcfps6	Change in CFO minus CFI minus PSD over the current fiscal year.
Δfcfps7	Change in CFO minus D & A minus total dividends (TD) over the current fiscal year.
Δfcfps8	Change in CFO minus CFCE minus TD over the current fiscal year.
Δfcfps9	Change in CFO minus CFI minus TD over the current fiscal year.
Δsps	Changes in total sales per share over the current fiscal year.
Δeps	Change in earnings per share over the current fiscal year.
Δdps	Change in dividends per share over the current fiscal year.
Δbvps	Change in book value per share over the current fiscal year.
Lnsale	Natural logarithm of total sales for the current fiscal year.

TABLE 1
DEFINITIONS OF FREE CASH FLOW ON THE WEB

1. In corporate finance, free cash flow (FCF) is cash flow available for distribution among all the securities holders of an organization. They include equity holders, debt holders, preferred stockholders, convertible security holders, and so on. en.wikipedia.org/wiki/Free cash flow.
2. Net income plus depreciation and amortization, less changes in working capital, less capital expenditure. en.wiktionary.org/wiki/free cash flow.
3. Adjusted operating cash flow less interest and tax paid, prior to distributions to shareholders. This is the cash flow available for payments of dividends and share buybacks as well as repayments of capital on loans.www.reed-lsevier.com/investorcentre/glossary/Pages/Home.aspx
4. Cash flow from operating activities, investments, financial items and tax and the effect of restructuring measures on cash flow. www.investor.rezidor.com/phoenix.zhtml.
5. EBITDA minus net interest expense, capital expenditures, change in working capital, taxes paid, and other cash items (net other expenses less proceeds from the disposal of obsolete and/or substantially depleted operating fixed assets that are no longer in operation). www.cemex.com/ic/ic_glossary.asp.
6. This item on the cash flow statement represents the sum of cash flows generated by operating and investing activities. investors.benettongroup.com/phoenix.zhtml.
7. How much money a company could pay shareholders out of profits without expanding, but without running down its existing operations either. moneyterms.co.uk/d/
8. Represents a common measure of internally generated cash and is defined as cash from operations less fixed asset purchases. portal.acs.org/portal/PublicWebSite/about/aboutacs/financial/WPCP_012234.
9. Cash available after financing operations and investments, available to pay down debt. www.graduates.bnpparibas.com/glossary.html.
10. A stock analyst's term with a definition that varies somewhat depending on the particular analyst. It usually approximates operating cash flow minus necessary capital expenditures. www.jackadamo.com/glossary.htm.
11. The amount of money that a business has at its disposal at any given time after paying out operating costs, interest payments on bank loans and bonds, salaries, research and development and other fixed costs. www.premierfoods.co.uk/investors/shareholder- services/Glossary.cfm.
12. Net Operating Profit After Tax minus Year-to-Year change in Net Capital. www.intrinsicvalue.com/glossary.htm
13. The increase in cash from one period to the next. www.knowledgedynamics.com/demos/BreakevenFlash/GlossaryMain.htm.
14. Cash flow after operating expenses; a good indicator of profit levels. healthcarefinancials.wordpress.com/2008/01/24/equity-based-securities-terms-and-definitions-for-physicians/.
15. The surplus cash generated from operating activities recognized in the profit and loss account. This expresses a company's internal financing power, which can be used for investments, the repayment of debt, dividend payments and to meet funding requirements. www.deutsche-euroshop.de/berichte/gb2004/glossar_e.php

TABLE 2
PEARSON CORRELATION COEFFICIENTS

	Δspps	**Δfcfps1**	**Δfcfps2**	**Δfcfps3**	**Δfcfps4**	**Δfcfps5**	**Δfcfps6**	**Δfcfps7**	**Δfcfps8**	**Δfcfps9**	**Δsps**	**Δeps**	**Δdps**	**Δbvps**	**lnsale**	**lnat**
Δspps	1.00															
Δfcfps1	-0.01	1.00														
Δfcfps2	**-0.41**	**0.96**	1.00													
Δfcfps3	**-0.06**	**0.85**	**0.80**	1.00												
Δfcfps4	-0.01	**1.00**	**0.96**	**0.85**	1.00											
Δfcfps5	**-0.41**	**0.96**	**1.00**	**0.80**	**0.96**	1.00										
Δfcfps6	**-0.06**	**0.85**	**0.80**	**1.00**	**0.85**	**0.80**	1.00									
Δfcfps7	-0.01	**0.91**	**0.85**	**0.84**	**0.91**	**0.85**	**0.84**	1.00								
Δfcfps8	**-0.37**	**0.91**	**0.92**	**0.82**	**0.91**	**0.92**	**0.82**	**0.97**	1.00							
Δfcfps9	**-0.06**	**0.81**	**0.75**	**0.98**	**0.81**	**0.75**	**0.98**	**0.88**	**0.85**	1.00						
Δsps	**0.13**	**0.43**	**0.36**	**0.42**	**0.43**	**0.36**	**0.42**	**0.48**	**0.42**	**0.44**	1.00					
Δeps	**0.08**	**0.08**	**0.05**	**-0.11**	**0.08**	**0.05**	**-0.11**	**0.05**	**0.03**	**-0.11**	**0.05**	1.00				
Δdps	0.00	**-0.11**	**-0.05**	**-0.26**	**-0.11**	**-0.05**	**-0.26**	**-0.51**	**-0.45**	**-0.43**	**-0.24**	**0.05**	1.00			
Δbvps	**-0.31**	**-0.06**	**-0.09**	**-0.03**	**-0.06**	**-0.09**	**-0.03**	**0.03**	0.00	0.01	**0.20**	**0.40**	**-0.19**	1.00		
lnsale	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.02**	0.00	0.01	0.01	1.00	
lnat	-0.01	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.01	0.01	0.01	0.01	**0.94**	1.00

Variables are defined in Appendix A. Numbers in bold indicate significance at the 5% level.

TABLE 3
ASSOCIATION BETWEEN VARIOUS MEASURES OF FREE-CASH-FLOW AND CHANGES IN STOCK PRICES

Variables	Predicted Sign	Δspps (1)	Δspps (2)	Δspps (3)	Δspps (4)	Δspps (5)	Δspps (6)	Δspps (7)	Δspps (8)	Δspps (9)
Δfcfps1	+	0.714***								
		(9.96)								
Δfcfps2	+		-1.347***							
			(-19.98)							
Δfcfps3	+			0.284***						
				(7.5)						
Δfcfps4	+				0.72***					
					(10.03)					
Δfcfps5	+					-1.344***				
						(-19.92)				

Δfcfps6	+						0.285*** (7.54)			
Δfcfps7	+							0.714*** (9.96)		
Δfcfps8	+								-1.347*** (-19.98)	
Δfcfps9	+									0.284*** (7.5)
Δsps		0.428*** (16.12)	0.579*** (22.56)	0.445*** (16.71)	0.428*** (16.11)	0.578*** (22.55)	0.445*** (16.7)	0.428*** (16.12)	0.579*** (22.56)	0.445*** (16.71)
Δeps		4.023*** (139.73)	3.735*** (120.43)	4.026*** (138.61)	4.023*** (139.74)	3.736*** (120.41)	4.026*** (138.62)	4.023*** (139.73)	3.735*** (120.43)	4.026*** (138.61)
Δdps		-1.802*** (-23.87)	-1.153*** (-15.09)	-1.616*** (-21.95)	-1.803*** (-23.88)	-1.154*** (-15.11)	-1.616*** (-21.94)	-1.088*** (-11.9)	-2.5*** (-29.53)	-1.332*** (-15.93)
Δbvps		-4.277*** (-150.73)	-3.966*** (-127.92)	-4.278*** (-149.45)	-4.277*** (-150.75)	-3.966*** (-127.9)	-4.278*** (-149.45)	-4.277*** (-150.73)	-3.966*** (-127.92)	-4.278*** (-149.45)
lnsale		-0.043 (-0.14)	-0.004 (-0.01)	0.002 (0.01)	-0.044 (-0.14)	-0.003 (-0.01)	0.002 (0.01)	-0.043 (-0.14)	-0.004 (-0.01)	0.002 (0.01)
Lnat		0.396 (1.16)	0.27 (0.8)	0.335 (0.98)	0.397 (1.16)	0.269 (0.8)	0.335 (0.98)	0.396 (1.16)	0.27 (0.8)	0.335 (0.98)
Intercept		1.903 (1.16)	1.611 (0.99)	1.785 (1.08)	1.903 (1.16)	1.612 (0.99)	1.785 (1.08)	1.903 (1.16)	1.611 (0.99)	1.785 (1.08)
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		12,121	12,121	12,121	12,121	12,121	12,121	12,121	12,121	12,121
Adjusted R^2		0.6648	0.6729	0.6636	0.6649	0.6728	0.6636	0.6648	0.6729	0.6636

This table provides the results of regressing the change in future stock prices of a firm (Δspps) on various measures of changes in free cash flow (Δfcfps1 - Δfcfps9) and control variables. Coefficients are provided with t-statistics in parentheses below. Variables are defined in Appendix A. ***, **, and * represent two-tailed p-value significance levels of 0.01, 0.05, and 0.1 respectively.