

Is Free Cash Flow Value Relevant? The Case of the Telecommunication Industry

Mostafa M. Maksy
Kutztown University of Pennsylvania

This study attempts to determine whether free cash flow (FCF) is value relevant for the telecommunication industry and, if so, which FCF is the most value relevant. The results would help retail investors make better decisions, and may encourage accounting standards setters to require telecommunication companies to use a specific definition of FCF to enhance comparability. Using a sample of 3,872 observations covering the period from 1988 to 2012, the study shows that FCF is not value relevant for the telecommunication industry. This result is in agreement with some prior research as discussed in the literature review.

INTRODUCTION

Prior research is not conclusive as to whether free cash flow (FCF) is associated with stock prices, i.e., whether it is relevant to equity valuation. Furthermore, while the finance literature may have a somewhat uniform definition FCF, as the literature review below indicates, the accounting literature has a wide variety of definitions of FCF. The objective of this paper is to empirically determine whether any accounting definition of FCF has information content, or is value relevant, for the telecommunication sector of the economy. This study aims to provide two contributions to the literature. First, if FCF is value relevant this would help investors make better decisions as they would use FCF in making their investment decisions. If it is not, then investors may not need to waste their time to include FCF in their decision making process. Second, the study aims to determine whether there is a specific definition of FCF that is most relevant to accounting information users in terms of predicting stock price changes. Since the major objective of financial reporting is to provide information that is useful for decision-making, the two contributions of this study would enhance the objective of accounting. Furthermore, identifying a specific definition of FCF that is most relevant may have major implications for financial accounting standard setters. While the Financial Accounting Standards Board (FASB) requires companies, in Statement of Financial Accounting Standard (SFAS) No. 95, to report Cash Flow from Operations (CFO) on the Statement of Cash Flows (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 Earnings Per Share (EPS), which is based on accrual accounting, on the face of the Income Statement (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 encourage the FASB to require 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. This requirement would prohibit companies from voluntarily disclosing FCF of whatever definition they prefer. Adhikari and Duru 2006 report that 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) and these companies, on average, are less profitable and more leveraged than other firms in their own industries. Having all companies, in a given industry, reporting FCF that is calculated in the same way would enhance comparability of accounting information across firms. Because companies in a specific industry may spend more cash for capital expenditure or other investing activities than companies in a different industry, the author focuses the investigation in this study on one industry, telecommunication. Also, the telecommunication industry is selected for the study because telecommunication companies make significant investments in satellites, underwater cables, and other telecommunication equipment, that may make their FCF negative despite the fact they report profits. Furthermore, comparability in one specific industry is one of the enhancing qualitative characteristics of useful financial information as stated in FASB's SFAC No. 8. The remaining sections of the paper cover the literature review, the proposed model, sample, statistical results, conclusions, and limitations of the study, respectively. The final section provides some suggestions for further research.

LITERATURE REVIEW

In the finance literature, there is no wide variation of FCF definitions. Jensen (1986) is regarded as the seminal paper that laid out the basic definition of FCF. Jensen (1986) hypothesizes that FCF increases agency costs because the managers of companies with high FCF spend it on acquiring negative net present value (NPV) projects for the purpose of satisfying their ego (being managers of large-size companies) and possibly for increasing their own compensation. He proves his hypothesis by showing that, after acquisition, the return on investment of acquirers is lower than before the acquisition. In light of that, he defines FCF as "cash flow in excess of that required to fund all projects that have positive net present value when discounted at the relevant cost of capital." He argues that managers should not acquire negative NPV projects and should instead distribute the FCF as dividends to the stockholders. If managers want to acquire new companies they should do so using borrowed capital rather than the FCF. In this way, creditors would discipline managers (because they have the power to force the company into bankruptcy) and pressure them not to invest in negative NPV projects. The majority of papers in the finance literature tend to agree with Jensen's hypothesis. See, for example, Mann and Sicherman (1991), Opler and Sheridan (1993), Dhumale (1998), Carroll and Griffith (2001), and Freund et al. (2003). The problem with Jensen's definition of FCF is that it is not publicly available and, thus, unobservable. Companies do not disclose the actual set of positive NPV projects that they have at any point in time or even for a given year. Thus, Lang et al. (1991) used a measure of Tobin's q (the ratio of market to book value of equity) to proxy for this. The assumption is that if average q is less than 1, the marginal investment opportunity is negative. Lang et al. (1991, 317) note that the FCF hypothesis implies that the acquirer's return should be negatively related to FCF in low q firms, and unrelated to FCF in high q firms. They find that high q bidders have significantly higher mean returns than low q bidders, and higher median returns. As predicted by the FCF hypothesis, their low q , high FCF firms are the worst performers of any of their sample sub-sets. One notable exception to Jensen's FCF hypothesis is Gregory (2005) who used a dataset of UK take-overs and proxies for FCF similar to those used by Lang et al. (1991). Gregory reported that, contrary to Jensen's FCF hypothesis, there is evidence that acquirers with high FCF perform better than acquirers with low FCF.

Unlike the finance literature, the accounting literature has so many definitions of FCF. FCF is defined differently from academic article to academic article, textbook to textbook, professional article to professional 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. For example, 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 (D&A), interest, dividend, and other income, as well as proceeds from disposal of equipment and other assets. Prior to 1999, Coca-Cola defined FCF as CFO less Cash Flow for Investing activities (CFI). In 1999, it changed the definition to CFO less “business investment.” An analysis of its 1999’s SCF indicates that by “business investment” Coca-Cola meant “acquisitions and investments.” That change in definition increased its FCF in 1999 by almost \$2 billion. Mills et al. (2002) report the following different definitions of FCF by popular magazines and investment advisory service organizations:

Money Magazine: $OI - \text{Capital Expenditures (CE)} - \text{Changes in Working Capital (W/C)}$.

Forbes Magazine: $\text{Net Income (NI)} + \text{D\&A} + \text{or} - \text{W/C adjustments} - \text{maintenance CE}$.

Harry Domasb’s Winning Investing: $\text{CFO} - \text{Cash paid for Property, Plant \& Equipment (PPE)} - \text{Dividends}$.

The Motley Fool: $\text{NI} + \text{D\&A} - \text{changes in W/C} + \text{or} - \text{cash outlay for taxes}$.

Value Line: $\text{NI} + \text{Depreciation} - \text{Dividends} - \text{CE} - \text{required debt repayments} - \text{any other scheduled cash outlays}$.

InvestorLinks: $\text{NI} + \text{D\&A} - \text{CE} - \text{Dividends}$.

Advisors Inner Circle Fund: $\text{NI} + \text{D\&A} - \text{CE}$.

Subramanyam & Wild (2009, p. 417) define FCF as CFO less Capital Expenditures required to Maintain Productive Capacity (CEMPC) less Total Dividends (TD.) In the same edition, they mention another definition: $\text{FCF} = \text{Net Operating Profits After Tax (NOPAT)} - \text{Increase in Net Operating Assets (NOA)}$. Kieso et al. (2013, p. 234) defines FCF as $\text{CFO} - \text{CE} - \text{TD}$.

The author searched for “free cash flow definition” on Google search engine. This produced about 3.46 million entries for this title, the first of which is “Definitions of Free Cash Flow on the Web.” 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 one of the 15 definitions is different from the others. Adhikari and Duru (2006) report that of 548 firms of their sample that voluntarily reported FCF information, 283 (or 51.6%) defined FCF as $\text{CFO} - \text{CE}$, 117 (or 21.4%) defined FCF as $\text{CFO} - \text{CE} - \text{Dividends}$, and 64 (or 11.7%) defined FCF as $\text{CFO} - \text{CFI}$. The remaining 84 firms (or 15.3%) defined FCF in four different other ways.

Penman and Yehuda (2009), using a definition of FCF as CFO less cash investments find 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 definition of FCF has no association with changes in the market value of the equity. Furthermore, controlling 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. 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 $\text{CFO} - \text{CE}$ and acquisitions, is not.

On the other hand, Habib (2011), show that firms with greater growth opportunities and free cash flow, defined as the difference between CFO and CE, will have a higher value price and, additionally, FCF is positively related to stock return. Similarly, Shahmoradi (2013) using the same definition of FCF and a sample of listed companies in Tehran Stock Exchange between 2002 and 2011, reports a relationship (significant at the .05 level) between FCF and stock return of firms.

The above review of the literature, 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 telecommunication industry. The following section describes the proposed model to be used to answer the research question of this study.

PROPOSED MODEL

The author argues that FCF should be defined not only as the cash flow that is *cost free* (i.e., that is generated internally from operating activities) but also “the cash flow that management is *free* to do whatever it wants with it as long as management actions may not lead to the firm getting out of business”. Actions that may lead to the firm getting out of business include (a) not maintaining existing operating capacity (i.e. not replacing worn out PPE) and (b) not paying the annual installment of mandatorily redeemable preferred stock or the annual dividend on preferred stock. Not maintaining the existing operating capacity will lead to the gradual liquidation of the firm until it eventually gets out of business. Not paying the annual installment of mandatorily redeemable preferred stock or the annual dividend on preferred stock will not lead to gradual liquidation of the firm but will amount to financial suicide. Creditors and investors may deal with the company only if they are paid exuberantly high returns (which would be prohibitively high cost for the firm) or may stop dealing with the firm altogether if they determine that their downside risk is becoming too great compared to their upside reward. It may also be argued that not paying the debt that becomes currently due may lead to the firm getting out of business because it will lead creditors to force the firm into bankruptcy. However, most firms have lines of credit or refinancing programs so the debt that becomes currently due is paid out from new borrowing that occurs in the current period. Thus, there is no need to pay the debt that becomes currently due this period out of internally generated cash flow from operating activities in the current period. The annual installment due and preferred stock dividend on mandatorily redeemable preferred stock are not available in the Compustat database. They can only be obtained from a review of the notes to the financial statements. Considering the large size of the study sample (3,872 observations) that would be cost and time prohibitive. In addition, many companies do not have mandatorily redeemable preferred stock and many of those that do usually do not disclose the information in the footnotes based on the GAAP loophole that management believes the information is not material. To substitute for that information, the author decided to subtract preferred stock dividends (PSD) from CFO in the determination of FCF. While regular preferred stock are not exactly similar to mandatory redeemable preferred stock (since dividend declaration and payment on regular preferred stock is discretionary), the nonpayment of PSD may give the same signal to creditors and investors as the nonpayment of mandatorily redeemable preferred stock dividends. Furthermore, the subtraction of total PSD from CFO in the determination of FCF may compensate to some degree for the non-subtraction of debt that becomes currently due this period. In light of the above discussion, the author hypothesizes that FCF should be defined as follows:

$$\text{FCF} = \text{CFO} - \text{CEMPC} - \text{PSD}$$

Where:

FCF = Free Cash Flow

CFO = Cash Flow from Operating activities

CEMPC = Capital Expenditure required to Maintain Productive Capacity

PSD = Preferred Stock Dividends

The author decided to use the current year Depreciation & Amortization expense (D & A) as a proxy for CEMPC. A better proxy for that would be D & A computed based on the current cost of PPE. However, the disclosure of current cost of PPE, which was required under SFAS 34, is no longer mandatory, and few companies, if any, provide that disclosure.

Since the objective of this empirical study is to determine which FCF, if any, is a better predictor of stock prices, the study model will include other definitions of FCF besides the definition hypothesized here. Since there are so many definitions of FCF as illustrated in the literature review, the author decided to include in the model only those definitions that are most common. The following nine definitions will be included in the model:

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

Where: TD = Total Dividends paid on common and preferred stock.

It should be noted that FCF4 is the author's hypothesized definition, and FCF8 is Standard & Poors' definition and is reported directly in its COMPUSTAT database.

Since the change in the stock price per share ($\Delta SPPS$) may be affected by changes in sales per share (ΔSPS), earnings per share (ΔEPS), dividend per share (ΔDPS), and book value per share ($\Delta BVPS$), the proposed model includes all these variables so they can be controlled for to show the effect of change in FCF per share ($\Delta FCFPS$) on $\Delta SPPS$. Also, to control for the size of the firm, the natural logarithm of total sales ($\ln TS$) and natural logarithm of total assets ($\ln TA$) will be included in the model as well. The author also controls for year-end fixed effects. Thus, the proposed model is as follows:

$$\Delta SPPS = B_0 + B_1 \Delta SPS + B_2 \Delta EPS + B_3 \Delta DPS + B_4 \Delta BVPS + B_5 \Delta FCFPS_{1-9} + B_6 \ln TS + B_7 \ln TA + \epsilon \quad (1)$$

The definitions of the model variables are provided in Appendix A.

$\Delta FCFPS = FCFPS_t - FCFPS_{t-1}$ where $FCFPS_{1t} = FCF1/\text{weighted average number of common shares outstanding during year } t$. This weighted average number of common shares will be computed by dividing $(NI - PSD)$ by EPS for year t . The same rule applies for $FCFPS2$ through $FCFPS9$.

THE STUDY SAMPLE

The study sample includes all telecommunication companies listed in COMPUSTAT for the 25-year period 1988 to 2012. After eliminating all firm year observations that have missing variables, the final sample is composed of 3,872 observations. The study period starts from 1988 because SFAS 95, which requires companies to disclose CFO, was issued in 1987. Because the model uses the changes from year to year, 1988 observations will represent the changes from 1987 to 1988 data. The study period ends in 2012 because this is the last year with available data on COMPUSTAT at the time of collection. The year 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. In that year, 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). 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). Because of that abnormality, the author thought that the change in stock prices during 1988 was affected by psychological factors much more so than by financial factors. As a result, the author ran the model using a sample of observations ending in 2007. The results were not significantly different from the results based on the study sample ending in 2012.

STATISTICAL RESULTS

TABLE 2 presents Pearson correlation coefficients for all the study treatment (FCF) and control variables. As the table indicates, all FCF definitions have negative associations with changes in stock price ($\Delta spps$) at the 5% significance level. Among the control variables, $\Delta spps$ is also negatively

associated with changes in sales per share (Δsps), changes in earnings per share (Δeps), and changes in book value per share ($\Delta bvps$), and these associations are statistically significant at the 5% level. Furthermore, Δsps is significantly associated with most (first six out of nine) definitions of FCF, but negatively associated with two (FCF7 and FCF8) definitions, and not significantly associated with FCF9. Interestingly, Δeps is negatively associated with five out of nine definitions of FCF (FCF1, FCF2, FCF4, FCF5, and FCF8) but positively associated with three (FCF3, FCF6, and FCF9) definitions, and not significantly associated with FCF7. Also, Δdps is negatively associated with five out of nine definitions of FCF (FCF3, FCF6, FCF7, FCF8, and FCF9) but positively associated with the other four definitions (FCF1, FCF2, FCF4, and FCF5). On the other hand, $\Delta bvps$ is significantly associated with all definitions of FCF (except FCF1 and FCF4 where the association is also positive but not significant). The *lnsale* and *lnat* are not statistically significant with any of the FCF definition suggesting that these variables would be appropriate controls. The correlations presented in Table 2 already present some interesting results which the author validates in a multivariate framework shown in TABLE 3 as discussed below.

TABLE 3 presents regression coefficients for nine models by including one FCF definition at a time in the model. Along with the control variables specified in Model (1), 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 used. As TABLE 3 indicates, all FCF definitions have negative associations with changes in stock price (Δsps) at the 1% significance level after controlling for other determinants of changes in stock price. Among the control variables, Δsps is negatively associated with Δsps and these associations are statistically significant at the 1% level across all specifications of FCF. However, Δeps is not significantly associated with Δsps under any model. Furthermore, Δdps has negative but not significant association with Δsps under all FCF specification with the exception of two (FCF7 and FCF8 where the negative association is significant at the .05 level). However, $\Delta bvps$ are positively associated (with a .01 significance level) with Δsps under three specifications of FCF (FCF1, FCF4, and FCF7), negatively associated (with a .01 significance level) with Δsps under three specifications of FCF (FCF2, FCF5, and FCF8) and not significantly associated with Δsps under the remaining three specifications of FCF (FCF3, FCF6, and FCF9). Overall, TABLE 3 confirms the results of the univariate correlations in Table 2, that there is significant negative association between any definition of FCF and stock prices.

CONCLUSIONS

In light of the statistical results above, the author concludes that none of the nine definitions FCF used in the study is value relevant for the telecommunication industry. This conclusion is in agreement with some of the results of prior research, specifically Penmann and Yehuda (2009) and GuruFocus.com (2013a and 2013b). In light of this conclusion, investors contemplating investing in the telecommunication industry should not consider free cash flow as a factor in their decision making process. The results of this study show that not only that FCF is not value relevant but also sales per share and earnings per share are not. Book value per share is positively correlated with some FCF definitions but is negatively correlated with other FCF definitions.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The study is subject to some limitations. The most important limitation is the possibility that the study model did not include other variables that may have influenced stock price changes and is correlated with the definitions of FCF used in this study. The combined effect of those other variables is represented by the error term \sum in the model. Adding year fixed effects help mitigate some concerns but not all regarding unobservable explanatory variables. Another limitation is that there may be other definitions for FCF which may be value-relevant. While the author tried to develop as comprehensive a list as possible, other definitions of FCF may possibly exist.

One suggestion for further research is to replicate the study using other variables that could possibly have more effect on stock prices than the variables included in the study model. Another suggestion

would be to investigate whether a trading strategy could be developed shorting stock of telecommunication firms which have the greatest negative change in one or more measures of FCF over the prior year.

REFERENCES

- Adhikari, A. and A. Duru 2006. Voluntary Disclosure of Free Cash Flow Information. *Accounting Horizons* 20 (4), December, pp. 311–332.
- Carroll, C and J. M. Griffith 2001. Free Cash Flow, Leverage, and Investment Opportunities. *Quarterly Journal of Business and Economics*, 40 (3 & 4), pp.141-153.
- Dhumale, R. 1998. Earnings Retention as a Specification Mechanism in Logistic Bankruptcy Models: A Test of the Free Cash Flow Theory. *Journal of Business Finance & Accounting*, 25{7 & 8), September/October, pp. 1005-1023.
- Financial Accounting Standards Board. SFAC No.8 Conceptual Framework for Financial Reporting, Chapter 1, The objective of General Purpose Financial Reporting, and Chapter 3, Qualitative Characteristics of Useful Financial Information. FASB (September 2010).
- Financial Accounting Standards Board. SFAS No. 33: Financial Reporting and Changing Prices. FASB (September 1979).
- Financial Accounting Standards Board. SFAS No. 95: Statement of Cash Flows. FASB (November 1987).
- Freund, S., A.P. Prezas, and G. K. Vasudevan, 2003. Operating Performance and Free Cash Flow of Asset Buyers. *Financial Management* (winter), pp. 87-106.
- Gregory, A. 2005. The Long Run Abnormal Performance of UK Acquirers and the Free Cash Flow Hypothesis. *Journal of Business Finance & Accounting*, 32 (5& 6), June/July, pp. 777-814.
- GuruFocus.com. 2013a. Earnings, Free Cash Flow, and Book Value? Which Parameters are Stock Prices More Correlated To? <http://www.gurufocus.com/news/225255/earnings-free-cash-flow-book-value-which-parameters-are-stock-prices-most-correlated-to->. August 2, 2013.
- GuruFocus.com. 2013b. Is Free Cash Flow Overrated for its Importance in Stock Valuations? <http://www.gurufocus.com/news/225642/is-free-cash-flow-overrated-for-its-importance-in-stock-valuation>. August 8, 2013.
- Habib, A. 2011. Growth Opportunities, Earnings Permanence and the Valuation of Free Cash Flow. *Australasian Accounting Business & Finance Journal*, Vol. 5, No. 4, pp. 101-122.
- Jensen. M.C. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76 (2), pp. 323-29.
- Kieso, D., J. Weygandt, and T. Warfield 2013. *Intermediate Accounting*, 15th Ed., New York, NY: John Wiley & Sons.
- Lang, L.H.P., R.M. Stulz and R.A. Walking 1991. A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns. *Journal of Financial Economics*, 29, pp. 315–35.
- Mann, S. V., and N. W. Sichernman 1991. The Agency Costs of Free Cash Flow: Acquisition Activity and Equity Issues. *Journal of Business*, 64 (2), pp. 213-227.
- Mills, J., L. Bible, and R. Mason 2002. Rough Waters for Comparability: Defining Free Cash Flow. *CPA Journal* (January): 37–41.
- Miller, M. H. and Modigliani, F. (1961). Dividend Policy, Growth and the Valuation of Shares. *Journal of Business*, 34, 411-33.
- Modigliani, F. and Miller, M. H. (1958). The Cost of Capital, Corporate Finance and the Theory of Investment. *American Economic Review*, 48, 261-97.
- Modigliani, F. and Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review*, 53, 433-43.
- Opler, T.C. and S. Titman 1993. The Determinants of Leveraged Buyout Activity: Free Cash Flows vs. Financial Distress Costs. *Journal of Finance*, 48 (1), December, pp. 1985-99.

- Penman, S. and N. Yehuda 2009. The Pricing of Earnings and Cash Flows and an Affirmation of Accrual Accounting." *Review of Accounting Studies* 14, no. 4, pp.: 453-479.
- Shahmoradi, N. 2013. The Effect of Growth Opportunities and Stable Profitability on Market Value of Free Cash Flows of Listed Companies in Tehran Stock Exchange. *Journal of Basic and Applied Scientific Research*, 3 (8), pp. 495-501.
- Subramanyam, K. R. and J. J. Wild 2009. *Financial Statement Analysis*, 10th Ed., Burr Ridge, IL: McGraw-Hill/Irwin.

APPENDIX A VARIABLE DEFINITIONS

<i>Δspps</i>	Change in stock price between the end of the next fiscal year and the current year.
<i>Δfcfps1</i>	Change in the difference between cash flow from operations (CFO) and depreciation and amortization expense (DP) over the current fiscal year.
<i>Δfcfps2</i>	Change in the difference between cash flow from operations (CFO) and capital expenditures (CE) over the current fiscal year.
<i>Δfcfps3</i>	Change in the difference between cash flow from operations (CFO) and cash flow from investing activities (CFI) over the current fiscal year.
<i>Δfcfps4</i>	Change in cash flow from operations (CFO) minus depreciation and amortization expense (DP) minus preferred stock dividends (PSD) over the current fiscal year.
<i>Δfcfps5</i>	Change in cash flow from operations (CFO) minus capital expenditures (CE) minus preferred stock dividends (PSD) over the current fiscal year.
<i>Δfcfps6</i>	Change in cash flow from operations (CFO) minus cash flow from investing activities (CFI) minus preferred stock dividends (PSD) over the current fiscal year.
<i>Δfcfps7</i>	Change in cash flow from operations (CFO) minus depreciation and amortization expense (DP) minus total dividends (TD) over the current fiscal year.
<i>Δfcfps8</i>	Change in cash flow from operations (CFO) minus capital expenditures (CE) minus total dividends (TD) over the current fiscal year.
<i>Δfcfps9</i>	Change in cash flow from operations (CFO) minus cash flow from investing activities (CFI) minus total dividends (TD) over the current fiscal year.
<i>Δsps</i>	Change in total sales per share over the current fiscal year.
<i>Δeps</i>	Change in earnings per share over the current fiscal year.
<i>Δdps</i>	Change in dividends per share over the current fiscal year.
<i>Δbvps</i>	Change in book value per share over the current fiscal year.
<i>lnsale</i>	Natural logarithm of total sales over the current fiscal year.
<i>lnat</i>	Natural logarithm of total assets at the current fiscal year end.

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 stock holders, 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. equals 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 FOR TELECOMMUNICATIONS

	Δ aspps	Δ fcps1	Δ fcps2	Δ fcps3	Δ fcps4	Δ fcps5	Δ fcps6	Δ fcps7	Δ fcps8	Δ fcps9	Δ sps	Δ dps	Δ bvps	lnsale	lnat
Aspps	1.00														
Δ fcps1	-0.63	1.00													
Δ fcps2	-0.62	0.61	1.00												
Δ fcps3	-0.60	0.38	0.54	1.00											
Δ fcps4	-0.63	1.00	0.61	0.38	1.00										
Δ fcps5	-0.62	0.61	1.00	0.54	0.61	1.00									
Δ fcps6	-0.60	0.38	0.54	1.00	0.38	0.54	1.00								
Δ fcps7	-0.63	0.21	-0.32	0.29	0.21	-0.32	0.29	1.00							
Δ fcps8	-0.62	0.18	-0.09	0.49	0.18	-0.09	0.49	0.94	1.00						
Δ fcps9	-0.60	0.24	0.18	0.88	0.24	0.18	0.88	0.68	0.82	1.00					
Δ sps	-0.04	0.33	0.27	0.19	0.33	0.27	0.19	-0.19	-0.21	0.01	1.00				
Δ epps	-0.15	-0.24	-0.37	0.08	-0.25	-0.38	0.08	-0.12	-0.12	0.23	1.00				
Δ dps	-0.01	0.12	0.53	-0.17	0.12	0.53	-0.17	-0.94	-0.89	0.30	1.00				
Δ bvps	-0.12	0.03	0.03	0.43	0.02	0.03	0.43	0.29	0.35	-0.06	0.19	1.00			
lnsale	-0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.00	0.00	0.05	0.02	0.01	1.00		
lnat	-0.02	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.04	0.01	0.01	0.00	0.93	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 FOR TELECOMMUNICATIONS

Variables	Predicted Sign	Δ spps (1)	Δ spps (2)	Δ spps (3)	Δ spps (4)	Δ spps (5)	Δ spps (6)	Δ spps (7)	Δ spps (8)	Δ spps (9)
Δfcfps1	+	-1.499*** (-50.34)								
Δfcfps2	+		-1.39*** (-49.65)							
Δfcfps3	+			-0.809*** (-47.02)						
Δfcfps4	+				-1.499*** (-50.35)					
Δfcfps5	+					-1.39*** (-49.66)				
Δfcfps6	+						-0.809*** (-47.03)			
Δfcfps7	+							-1.499*** (-50.34)		
Δfcfps8	+								-1.39*** (-49.65)	
Δfcfps9	+									-0.809*** (-47.02)
Δsps		-0.758*** (-5.99)	-0.922*** (-7.23)	-1.484*** (-11.23)	-0.761*** (-6.02)	-0.925*** (-7.25)	-1.486*** (-11.25)	-0.758*** (-5.99)	-0.922*** (-7.23)	-1.484*** (-11.23)
Δeps		0.021 (0.61)	0.009 (0.25)	-0.02 (-0.56)	0.021 (0.61)	0.009 (0.26)	-0.02 (-0.56)	0.021 (0.61)	0.009 (0.25)	-0.02 (-0.56)
Δdps		-0.484 (-0.61)	-0.278 (-0.35)	-0.144 (-0.18)	-0.65 (-0.82)	-0.432 (-0.54)	-0.234 (-0.29)	-1.983** (-2.51)	-1.668** (-2.1)	-0.953 (-1.17)
Δbvps		0.178*** (2.63)	-0.308*** (-4.59)	0.081 (1.17)	0.178*** (2.63)	-0.308*** (-4.59)	0.081 (1.17)	0.178*** (2.63)	-0.308*** (-4.59)	0.081 (1.17)
lnsale		0.277 (0.41)	0.343 (0.5)	0.076 (0.11)	0.292 (0.43)	0.357 (0.52)	0.084 (0.12)	0.277 (0.41)	0.343 (0.5)	0.076 (0.11)
lnat		-0.419 (-0.63)	-0.396 (-0.59)	-0.017 (-0.02)	-0.432 (-0.65)	-0.408 (-0.61)	-0.024 (-0.03)	-0.419 (-0.63)	-0.396 (-0.59)	-0.017 (-0.02)
Intercept		-8.035* (-1.9)	-7.676* (-1.8)	-8.11* (-1.87)	-8.005* (-1.89)	-7.648* (-1.8)	-8.094* (-1.86)	-8.035* (-1.9)	-7.676* (-1.8)	-8.11* (-1.87)
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations		3,872	3,872	3,872	3,872	3,872	3,872	3,872	3,872	3,872
Adjusted R ²		0.4305	0.4243	0.4001	0.4306	0.4244	0.4002	0.4305	0.4243	0.4001

This table provides the results of regressing the change in future stock prices of a firm (Δ spps) on various measures of changes in free cash flow (Δ fcfps1 - Δ fcfps9) 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.