



Valuation of Quarterly Stock Prices: Applying Ethical Principles to Discounted Cash Flow Method

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ABSTRACT

Even though companies' valuation techniques have evolved and have been developed into more sophisticated methods, there is still a big dilemma in the investing world about finding the price of a company. Our research focus on finding the price for a company's stock by using ethical principles in addition to economical foundation. This paper covers the merger of economic, financial, and ethical factors included in the model and resulting in an intrinsic price using a modified discount cash flow (MDCF) method. Presentation of the model's results were discussed to compare the MDCF stock value to the actual market price. Our inference shows that incorporating ethical principles, like using real economy factors instead of interest rate and using paid taxes in a valuation model can show a better correlation with stock prices compared to regular DCF model prices for the chosen companies. Such model can be developed as a response to investors' choice for ethical strategies for stocks selection strategies as well as assets valuation.

Keywords: Valuation Method, Socially Responsible Companies, Stock Selection, Discounted Cash Flow Method

JEL Classifications: G12, G32, M14

1. INTRODUCTION

There have been many debates lately over the true value of a business or an investment because of the large price fluctuations of companies' stocks, the continuous cycle of international financial bubbles crisis, and lately the global financial and economic crisis where many large financial institutions had gone bankrupt, and even some states and countries (Greece) almost declared bankruptcy. One reason that can be attributed to such crises is the strong supremacy of speculation over the fair value of assets leading to catastrophic financial decisions, and an increase of uncontrolled and unfounded risky investments. We believe many factors affected the unrealistic assumptions of professionals when valuing their investments or companies.

Stock prices should first reflect economic value of a company before any other factors whether related to market trading conditions or any others exogenous factors. However we witness a large deviation of prices from their intrinsic value. In fact, some

studies showed that investors give more importance to secondary information versus primary information precisely fundamental data (Guzavicius and Barkauskas, 2014).

As a matter of fact market price reflects three components: The intrinsic value of the stock itself which is directly related to the past, present and future fundamental output of the company, second the typical premium/discount margin as an effect of behavioral market forces related to daily trading, and finally a third components which is the irrational speculating effect of market players. The price should be close and reflect more the true value of the underlying asset in addition to a realistic supply/demand market effect. Nevertheless it's rarely when the market reflect an efficient state; and if does it's with a weak correlation (Shreiber, 1979).

Another behavior of the market is that investors go back and forth from fundamentals to technical analysis to make profits which translate into periodical bubbles through history (Schmitt

and Westerhoff, 2014). In our research, we believe to focus first on finding the intrinsic value of the company then compute the stock price per share. The focus is on parameters affecting the real value of companies' quarterly stock prices. Such parameters will be based on economic, financial, as well as ethical principles, specifically by using corporate social responsibility (CSR) values.

In the first part of this paper, we will present the existing valuation methods using either income and/or asset for valuing investments. Then we will cover the importance of ethical principles in society and how it is related to objectives and role of companies. Our focus in section four will be mostly on the studies focusing on finding the relationship between CSR and companies performances either in their business or in the stock market. In the fifth section we will present the model and principles inspired from economic as well as ethical values. Our research findings will be then presented and analyzed in section six so that we end this paper with a conclusion of our study.

2. COMMON VALUATION METHODS

It is sure that finding the intrinsic price is not an easy task but many methods were developed to compute the fair value of a company like the discounted cash flow method discount cash flow (DCF) with all its deriving methods (Gordon growth model); price to earnings method (P/E), Residual income (RI) method among other more sophisticated models. All these methods try to grasp the financial strength and the promised value of a company. We choose to use the DCF valuation method since it is the most used method next to P/E method as well as the better performing one (Demirakos et al., 2010), also because it reflect mostly the economic strength and performance of a company independently from the trading market forces. Our use of such method is also convenient since it is relying on quarterly information released by companies, managers, news industry and government.

One famous DCF method is the Miller and Modigliani (MM) principle, and if we consider their valuation model, we find that $d(t)$ represent the dividend per share, which include the effect of new raised equity or any other changes to the number of shares outstanding (1961). In fact Aharoni et al. showed that significant negative correlation exist between expected investment and stock price at the firm level versus an insignificant correlation at the per share level (2013). So in our valuation model we will work at the firm level and then we divide by the number of shares outstanding at time t .

$$Price_t = E(d_{t+1}) + E(p_{t+1}) \quad (1)$$

The MM was then developed into the constant growth method which is mostly used in firm valuation. It state that today's asset value is the sum of discounted expected future free cash flow (FFCF) to infinity. But since we can't predict future cash flow to infinity, we will choose to stop our predictions of CF at a certain time T and then compute a terminal value (TV) at time T (2). Such TV is nothing but a perpetuity of discounted FFCF growing at a constant growth rate (3).

$$P_t = E(x_{t+1}) (1+r)^{-1} + E(x_{t+2}) (1+r)^{-2} + \dots + (E(x_{t+T}) + (TV_{t+T})) \quad (2)$$

$$TV_t = E(x_{t+1}) (r-g)^{-1} \quad (3)$$

With x_t representing the FFCF at time t , r is the discount rate, and g is the constant growth rate.

We can agree that such method (2) depend on four components: FFCFs, TV, discount rate and the horizon T chosen at which the cash flow will be annually projected before opting for the perpetuity. In reference to the formula (2) an asset price will depend on the TV to some extent in relation to the period T chosen for the explicit cash flow. The further we go in time and project future cash flow the less is the weight of the TV as a percentage of the price. However future cash flow are less certain and are associated with more unpredictable risk as we go farther in time. But if we shorten the horizon so to forecast only the more certain FFCF with more predictable risk, our present price will have a large percentage coming from the TV that is itself depending on other assumptions used for infinity (i.e., g , r , and x_{t+1}) (Sabal, 2013).

In order to propose a solution to this dilemma, we propose a model inspired from the clean surplus equation from Peasnell (1981) and Ohlson (1995).

$$P_t = y_t + \sum_{i=1}^{\infty} ((1+r)^{-i}) (E(x_{t+i})) \quad (4)$$

Where y_t is equity book value at date t and x_{t+1} earning for the period $(t, t+1)$. In fact RI approach gained a tremendous attention lately in the area of asset valuation. Claus and Thomas proved in their research the superiority of forecasting equity premium using RI method versus the dividend constant growth model (2001). Also Desrosiers et al., used RI methodology to deduct the induced expected ROR using a zero-investment portfolio (2007).

3. SOCIAL WELL BEING AND ROLE OF COMPANIES

More than 35 years ago, the late Milton Friedman wrote: The social responsibility of business is to increase its profits. According to Friedman the main purpose of a business is to maximize the value of shareholder and by doing so it will also improve the values of all the other stakeholders (1970).

However, the scandals blown by companies throughout the previous decades showed that Friedman's theory not only felt short of protecting the society but it increased the risk for shareholders as well; who were also victims of the famous value maximization theory. Even more in some cases shareholders maximization as an objective especially in the short-term time proved to have counter results on the financial performance of a company. For this reason new wave of investors came to believe the importance of other objectives; beside their wealth maximization can improve the performance of their businesses as well their society. As Mackey, founder and president of whole foods, states: In contrast to (Milton) Friedman, I do not believe maximizing profits for the investors is the only acceptable justification for all corporate actions. The

investors are not the only people who matter. Corporations can exist for purposes other than simply maximizing profits (2005).

Many scholars, professionals and businessmen believe that shareholders do not constitute the only main principles agents of a company but rather other stakeholders play a great importance in the sustainability of a business. It's true that shareholders provide their financial resources, but so are employees that offer their human capital; planet that offers its natural resources, government that protect the rights and transaction of the company; and the society that provide consumers for the company to sell its products and services.

In addition to that, many corporate scandals and their effects on the society, the environment, and on the economic development showed the importance to analyze the role of corporation and businesses in the sustainability of a society. According to Chappell: We are helping to create a new mind-set, those responsible practices and profitable practices are one and the same. It is more difficult to manage responsibly and profitably but it is within our human means. It just takes being intentional about being good as well as being successful (1993).

From an ethical point of view companies should generate profits in a way that also help society improve through the incorporation of actions that follow the rules of good governance, transparency, customers safety, environment and employees' human right protection. The underlying principle is that goal, means, and the way to do business should all be serving shareholders as well as all other stakeholders. However, when it comes to business and making profit most of these principles for many reasons are ignored. The nature of capitalism system can be one reason where each individual should optimize his utility and an invisible hand will work out to translate his added value to the macro level resulting in an optimal economic performance!

Still for the last years, CSR theory has met with widespread enthusiasm. Today Around 6000 companies all over the world are engaged in CSR. According to IFC in September 2010, the ISO

26000 standard on social responsibility was adopted, with 93% of the participating standardization organizations, from 90 states, voting in favor. The United Nations Human Rights Council is currently adopting guidelines for human rights and companies expect the guidelines to be accepted by a unanimous vote (IFC, 2011).

In the following we will present the link between ethical principles and performance of a business. Then we will present a modified model of DCF permitting to value a company's quarterly stock price using these same ethical values.

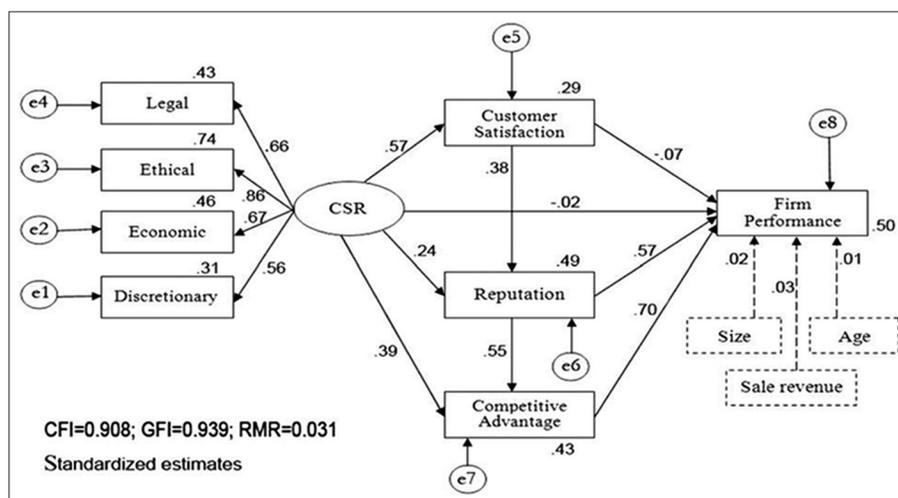
4. ETHICAL PRINCIPLES AND COMPANIES PERFORMANCE

There is still a huge debate about the added value of CSR to a company or the existence of any effect on firms' performances. On one hand; some studies showed positive relationship between CSR and companies' performance like Margolis and Walsh (2003), Orlitzky et al. (2003). On the other hand other research found negative or neutral contribution of CSR to firm performance like Teoh et al. (1999), Bromiley and Marcus (1989), and Wright and Ferris (1997). Such latter findings can be disputed if we know that other research showed an indirect relationship between CSR and the excelling of a company. Factors like reputation and competitive advantages can indirectly affect the good performance of companies (Saeidi et al., 2015) (Figure 1).

Another indirect factor is employees' satisfaction and its relationship to companies' performance. Fua et al. (2014) opted for a comparison of economical versus philanthropic dimensions of CSR in analyzing its effect on employee citizenship and identification (2014). They show that employees can prefer economical CSR versus philanthropic CSR. Such employee commitment can turn into employee commitment behavior and hence enhancing the competitive advantages of companies.

Moreover and since there is greater interest toward the important influence of stock market on the economic growth, some studies

Framework and main effects test (standardized beta values)



How does CSR contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction

find that stock market liquidity and total factor productivity have positive relationship with macro-economic growth of a country when a certain threshold of ethical behavior and trustworthiness of companies is met (Ng et al., 2015).

Such discovery is important in improving the role of the real economy versus the financial economy. In fact stock market has an increasingly important role as a provider of capital for the real economy and if we can value the effect of CSR on the whole economy we can show regulators that it's better to think about some policies encouraging CSR behavior and trustworthiness in the business versus policies that enforces control and supervision of the market.

Accordingly we believe it's crucial to incorporate the CSR activities in asset pricing regardless of the investors perspective of social responsibility. While investors in UK do value CSR activities in term of communities and environment and this is reflected in a consistent long term abnormal return of CSR companies (Buckingham et al., 2011).

Other studies also showed that market has correctly priced the CSR engagement of companies especially for the corporate sustainability leaders (Mollet and Ziegler, 2014).

Given many reasons stated before and hereafter; it is time that CSR costs and efforts reflect an added value in the stock price or the value of companies undertaking such projects that benefit shareholders as well as stakeholders and the society as a whole. CSR is a model by what we can have some kind of a social capitalism. The concept of CSR demand both private and public solutions. Saying that businesses actions in the micro level are related to the macro level: Whole is not the sum of parts; means we need to care about the whole picture starting in a micro level. This means that, when agents behave ethically, they are able to gain, as a group, invariances absent from individuals (Al-Suwailem, 2012).

Another reason that support the importance of valuing the social activity of company is that investing strategies horizons are getting shorter reflecting growing interests in making profit from prices movements expectations whether these prices reveal true value of the stocks or not. And since investors have great effect on the management choice of investment horizons (Liljebloom and Vaihekoski, 2009), managers are now more pressured to manipulate or adapt their financial releases to answer short-term needs of investors. And so a common practice is used in the world of business that is earnings smoothing. Since investors dislike huge fluctuations in reported earnings, managers choose to flat earnings results through the years initiating on occasion an abuse in earnings results which can convey wrong future expectations. In the case of socially responsible companies, Gao and Zhang (2015) found a non-abuse of such practice and that CSRs reported earnings deviate less from their permanent earnings making such financial releases more reliable information to be used by investors.

5. MODIFIED DCF MODEL (MDCF)

In our research, we believe to focus first on finding the fair value of the company then to price it. It's important to clarify that the

model proposed in our research is not mainly inspired from ethical values meaning that some principles have economic foundation like the uncertainty in valuing the TV as we go further in time, or the use of industry risk factors in computing the discount rate. But some other factors and arguments are purely related to theories inspired from ethical thinking. Our objectives are such that on one hand we like to test the economic robustness of the model's stock prices in comparison to market prices and on the hand to present some new factors not used by financial analysts but could be valued in the world of ethical investing.

The modification of the DCF will touch upon two points. First the way TV is computed, and second the discount rate used. As far as the future cash flow stream, we will use FFCF to Investors meaning after subtracting any paid liabilities to debt holders (FFCFNL). We assume that an investor would like to know how much CF he will receive after paying any liabilities. Of course that FFCFNL can either be spent on future investment or the investor will receive it in form of dividends, or a mix of both. Any retained cash if invested or not will be added to the company's asset and hence increase the investors' book equity value. This latter constitute an important part in valuing TV of the company.

However the fact that forecasting future cash flow to eternity is an impossibility (Damodaran), it is with high uncertainty that we compute TV as the result of infinite constant growing FFCF discounted at a constant cost of capital. In order to combine both a shorter and more certain forecasted FFCF with a better valuation of the TV, we introduce terminal social equity value (SEV) in our method. In fact, using Peasnell and Ohlsen model (4) we introduce the terminal SEV as the book equity value at time t plus any goodwill value accumulated from time zero until time T .

$$P_t = y_{(t+T)}(1+r)^{-(t+T)} + \sum_{i=1}^T ((1+r)^{-i} (E(x_{(t+i)}))) \quad (5)$$

Such accumulated social equity value (y_{t+T}) was systematically built through the company's expenditures on other stakeholders. With expenditure including accumulated taxes, dividends, and any social responsibility projects paid by the company. We believe that a company is socially responsible when it pays all its stakeholders including shareholders and government. Our argument is that the company distributes some of its earnings to investors, government and other stakeholders and that each of the society members can help improve directly or indirectly the general public wealth with that earned money. That is the reason we will introduce paid taxes as a factor of firms being socially responsible. However in practice managers uses tax planning techniques to pay less tax and hence increase the value for shareholders. Such misconception was proved by Shaipah et al. (2012) where they conclude that there no value is assigned by shareholders to tax planning and that the latter actually reduce the company value.

The time T chosen for the TV is subjective, and for our sample we will choose the 5th year as the year for computing the TV. Our choice for a short period is backed by a risk reducing purposes since it's important to diminish the uncertainty related to future CF and to the forecasted TEV. But this period can be adapted to the level of risk and to the average timeline of projects per industry,

or the age of the company. New start-ups can be valued based on short periods versus more matured companies with better stable cash flows can be valued using longer periods. Also, growth companies with future promised innovations can be forecasted based on the length of their projects payback periods or any future potential breakthroughs.

At time t we define:

$$Price_{Market_t} = f(\text{Intrinsic value}_t, \text{Trading margin}_t, \text{Speculation effect}_t) \quad (6)$$

$$I_t = \sum_{i=t}^{t+T} \frac{E(FFCFNL_i)}{(1+k_i)^i} + \frac{E(TV_{t+T})}{(1+k_{med})^T} \quad (7)$$

$$TV_t = [\sum_{i=0}^t SE_i (1+k_i)^{t+T-i}] + BV_{t+T} \quad (8)$$

- I_t : Intrinsic value
- $FFCFNL_i$: Future free cash flow net of paid liabilities
- TV_t : Terminal value
- k_i : Discount rate
- k_{med} : Median of discount rate
- SE_i : Total paid taxes plus paid dividends plus any other socially responsible costs
- BV_t : Book equity value

As for the discount rate, we use a multiple-factor model to compute a cost of equity rate that depend on economic, industry, and business specific factors. As for economic effect on stock movements which is referred to as the systematic risk that all companies are exposed to. Accordingly we use real gross domestic product growth for economic factor in addition to GINI factor as an assessor of a country's wealth disparity. GINI index is important in our model to weight the importance of paid taxes, dividends, and any socially responsible projects. The higher the GINI index the higher the risk for the economy and the higher the importance of such spending for the society which should increase the intangible value of a company.

For industry risk factors we introduce risk rating of the industry from less risky (3) to more risky (1). The rating is an average of five factors: Product utility meaning its importance in daily life usage. For an example food is rated (3) since we can't live without having it, while cars are rated (2) meaning that we need them in our daily life but not like food which is a survival need for human kind. Online shopping services can be rated as a (1) since it's possible to be deprived of it without disrupting our regular life. Second, third and fourth factors are degrees of supplier, client, and labor concentration in an industry. In fact we consider any factor concentration as a power of that stakeholder on the industry making it a risk for the company's performances. As a fifth factor we will rate the average product cycle in the industry from (1) as being a product in the introductory phase to (2) as being in the growth phase, and products in the mature stage will be rated (3).

Business specific factors like company asset size, percentage fixed assets to total assets, operating cash flows variations, sales real growth rate, leverage ratio for the business, dividend

payout ratio, effective tax rate, and social responsibility rating of the company.

$$k_t = \text{Economic risk} + \text{Industry risk} + \text{Specific risk} \quad (9)$$

$$\text{Economic Risk}_t = (GDPRG_t) (GN_t) \quad (10)$$

$$\text{Industry risk}_t = \frac{(3 - \text{Average } IC_t)}{100} \quad (11)$$

$$\text{Specific risk}_t = SRG_t^4 + [(LV_t)(1 - PPE_t)]^4 + \frac{(1 - ET_t - ((DV_t)(1 - LV_t)))}{100} + \frac{SI_t}{AG_t} + OR_t^4 \quad (12)$$

$GDPRG_t$: Gross domestic product real growth rate

GN_t : GINI index

IC_t : Industry concentration

SRG_t : Sales real growth rate

LV_t : Leverage

PPE_t : Property plants and equipment ratio

ET_t : Effective tax rate

DV_t : Dividend payout ratio

SI_t : Size to industry

AG_t : Company's age

OR_t : Operating cash flow risk.

While our proposed MDCF model still need a mathematical optimization, we had run some simulation on excel using statistical regression to check the significance of its logic and its factors. Our next article it to work on an optimization model of the cost of equity.

6. RESULTS AND DISCUSSION

The model is applied on sample of five American companies representing different industries with different sizes and different maturity ages. We collected economic data, industry data, and company's data using a historical period of 5 years. We used quarterly financial statements reports 10-Q disclosed by companies to be able to predict quarterly stock prices, and the CSR rating was outsourced from the CSRHub (a company specialized in CSR and sustainability ratings and information). Data was then included in the model to provide an intrinsic value of the company at every quarter for 20 quarters (5 years). And to compare our model to the existing DCF we computed also a predicted stock prices based on the regular discounted cash flow method. For TV we use a constant growth rate. Same discount rate was applied to both models.

In term of factors used in the model we find mixed correlation signs for same factors from one company to another (Table 1). While EBay - 0.98, KC - 0.35, Biogen - 0.93, and GM - 0.53 have positive strong correlation, Cisco - -0.02 show no relationship between its assets and its market price. Another interesting result is the split signs of correlation signs regarding book equity and total liabilities. If for Biogen and Cisco there is a positive correlation between book equity and stock market prices 0.18 and 0.86 respectively, we find the opposite for EBay, KC, and GM -0.65, -0.75, and -0.51 respectively. On the other hand; correlation between total liabilities and stocks

prices are positively strong for all companies except for Cisco which is the only company negatively correlated to total liabilities with -0.12 . Not only that; but Cisco is the only company with low or zero correlation between its fundamentals and its stock prices.

In terms of sales, earnings and cash flow we notice also a mixed signs of correlation from companies. Results show negative relationship between FFCFNL and market prices with Cisco -0.12 , EBay -0.12 , Biogen -0.35 , and GM -0.12 except for KC with 0.11 . However the only surprising result is the consistent positive correlation between paid taxes and stock prices cross the board of all companies from highest correlation of Biogen 0.74 to GM with 0.11 . This is an interesting result for our model since we will include paid taxes as an accumulated social value for the TV of the company.

Having run the model on the five companies the results on Table 2 are almost similar for all companies where TV using MDCF method have higher positive correlation with stock prices than TV using DCF where we find low positive and negative correlation. For Biogen, EBay, GM, and Kimberly Clark the results are 0.96 , 0.97 , 0.48 , and 0.97 respectively, except for Cisco with a 0.09 . Those are important results since TV constitute an important part of the price whether we use DCF or MDCF. Another central component of the valuation is the discount rate. For “ k ” we find positive correlation with EBay, GM, and KC, while negative correlation relates cost of equity with prices of Biogen and Cisco. EBay with highest association of 0.96 , KC with 0.58 , GM with 0.49 , Cisco -0.57 , and finally Biogen with -0.47 .

As for pricing equities (Table 3), DCF prices showed lower correlation with market prices compared to MDCF value prices cross the five companies except again for Cisco. In fact the model explained 0.95 of Biogen’s price fluctuations, 0.91 for EBay, 0.78 for Kimberly Clark, and 0.24 for GM. For significance of t-test statistics all companies show high positive t suggesting that MDCF model exceedingly explain stock prices. As for Cisco, its DCF adjusted R^2 is -0.05 and -0.05 for MDCF. But as mentioned before Cisco had little existing correlation between its fundamental factors, its TV on one hand and its stock prices on the other hand at time t . However we find that this relation increased as we correlate previous fundamental data with recent prices. In fact Cisco stock prices showed up to 0.54 in its adjusted R^2 for $t-6$. Such improvement in the significance of the model is not necessarily consistent with all companies as we can notice a weakening of adjusted R^2 when lagging our model by one period for Biogen, EBay, and Kimberly Clark (Table 4).

Sources of such strong adjusted R^2 can be explained by either strong correlation with book equity like with Biogen. Another reason could be the high correlation with k like in the case of EBay and GM. Or it could be the correlation with paid dividend as for the case of Kimberly Clark (0.92) or with paid taxes like with Biogen (0.74). Dividend and taxed which represent CSR spending have great effect on the value of a company in addition to book equity. Instead total liabilities and leverage had positive effect on stock prices, thing that; from a risk analysis point of view; is not accepted.

Table 1: Pearson’s correlation coefficient for factors used in the model

Companies	Cisco	EBay	Kimberly Clark	Biogen	GM
Assets	(0.02)	0.98	0.35	0.93	0.53
Book equity	0.21	(0.65)	(0.75)	0.89	(0.51)
Total liabilities	(0.12)	0.96	0.75	0.88	0.59
Revenues	(0.14)	0.94	0.79	0.96	0.51
Net earnings	0.23	0.18	0.35	0.85	(0.50)
Operating CF	0.05	0.73	(0.04)	0.67	0.14
FCF	(0.13)	(0.11)	0.02	(0.18)	(0.22)
FCF net of paid liabilities	(0.12)	(0.12)	0.11	(0.35)	(0.12)
Paid taxes	0.17	0.15	0.56	0.74	0.11
Paid dividend	0.08	NA	0.92	(0.46)	(0.25)
Leverage	(0.33)	0.93	0.66	(0.29)	0.61
Operating risk	0.07	0.60	0.05	0.01	0.01

FCF: Free cash flow

Table 2: Pearson’s correlation coefficient for “ k ”, TV of “DCF” and “MDCF”

Companies	k	TV of DCF	TV of MDCF
Biogen	(0.47)	0.01	0.96
Cisco	(0.57)	0.12	0.09
Ebay	0.96	(0.08)	0.97
GM	0.49	(0.32)	0.48
Kimberly Clark	0.58	0.33	0.97

TV: Terminal value, MDCF: Modified discount cash flow, DCF: Discount cash flow

Table 3: Significance t-test for DCF price, and intrinsic price at time t

Companies	DCF		MDCF	
	Adjusted R^2	t-statistics	Adjusted R^2	t-statistics
Biogen	0.76	7.81	0.95	18.77
Ebay	(0.04)	(0.46)	0.91	13.63
GM	0.10	(0.64)	0.24	(2.47)
Kimberly Clark	(0.01)	0.95	0.78	8.41
Cisco	(0.05)	0.33	(0.05)	0.31

MDCF: Modified discount cash flow, DCF: Discount cash flow

Table 4: Significance t-test for DCF price, and intrinsic price at time $t-1$

Companies	DCF		MDCF	
	Adjusted R^2	t-statistics	Adjusted R^2	t-statistics
Biogen	0.73	7.07	0.94	16.57
Ebay	(0.06)	0.22	0.91	13.15
GM	0.26	(2.50)	0.33	(2.87)
Kimberly Clark	0.08	1.62	0.76	7.71
Cisco	(0.06)	(0.19)	(0.05)	0.38

MDCF: Modified discount cash flow, DCF: Discount cash flow

Another explanation of such variances between companies is how strong market trading is in deciding about stock prices. In this research we offer a valuation model based on financial reporting of companies. Our objective is to separate fundamentals performance effects from market trading effect. In fact companies’ stock prices should first reflect their real economic added value before having a markup margin related to market liquidity. In (Figure 1), Biogen’s MDCF prices are very close to market showing how trading

margins have small effect on prices' movements compared to EBay (Figure 2), and a more significant liquidity part in GM's prices (Figure 3).

7. CONCLUSION

In applying ethical principles to the DCF valuation model we can reach many interesting results, and in order to improve such results for prices' fluctuations we should run the model on a larger sample, and see if we can create ethical portfolios with companies that are socially responsible. Our model is a proposition to rethink the way investor value different areas of a company's performance. How come we can value positively leverage or negatively book equity? Why operating cash affect negatively some stock prices? Why market prices reflect the business risk of the company in some

Figure 1: Biogen market and modified discount cash flow prices



Figure 2: EBay market and modified discount cash flow prices

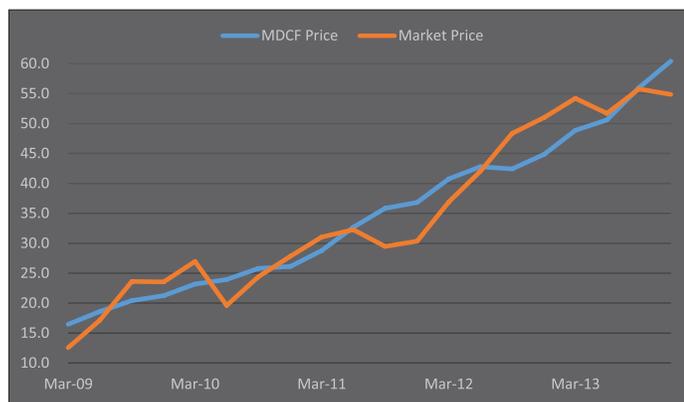


Figure 3: GM market and modified discount cash flow prices



stocks and not in others? Such questions can help in developing more methods to guide stock market investment in the right path instead of just analyzing its behavior whether it is economically sound or not. As mentioned before our next paper will be to optimize this model, and then the following paper will include an additional trading margin to the intrinsic value, hence computing an economic price with exclusion of any speculation effect or non-economically sound investment strategies.

We conclude that the model can have robust price predictions compared to the original DCF prices. Under the regular methodology for studies in asset valuation; most researchers try to find the correlation between stock market prices and many factors. But given the repeated financial crisis in the history we can infer that investors are not always right. Without a new innovative role of researchers; existing valuation methods will not reflect the rapid development of the business world. Reaching an improvement of the model will be through the optimization of the cost of equity. Such optimization will be reached if we can reduce the discount rate and maximize the social value from the CSR spending.

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