

15 Strategic finance in the 21st century



fifteen expert
opinions

8

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Prof. T.E. Copeland

1. New developments in valuation

In conversation with Professor T.E. Copeland

One of the most eminent authorities in the field of valuation is Tom Copeland, not least because of the fact that he is the co-author of the standard work in the field of valuation, i.e. the well-known valuation book that will be appearing in its third edition in the spring of 2000. Professor Copeland is the most appropriate person to ask which subjects are currently under discussion in the field of finance and financing. Are fundamental changes taking place or are the developments merely a temporary fad? The developments we are thinking about in this respect are value-based management, corporate governance, discussions about the basic valuation model, the modification of discounted cash flow model and the modification of the capital costs for smaller companies, as well as the separation of elements of financial risk and business risk in order to give them a separate valuation. Professor Tom Copeland is also the man who can best judge whether new valuation theories, such as the application of option theory on valuation and other financial decisions, will continue to be a subject that is confined to financial scientists or whether there is a possibility that they will break through to the everyday life of financial management. These are subjects that will be discussed with Professor Copeland.

Could you please say a little about your background?

Copeland: 'I gained a Bachelors' degree in economics from the John Hopkins University in Baltimore in 1968, an MBA from Wharton in 1969 and a PhD from the University of Pennsylvania in 1973. Between 1973 and 1987, I was a faculty member at UCLA's Anderson graduate school of management where I became a full professor and chairman of the department. Between 1987 and 1998, I was a partner at McKinsey & Co. in New York, where I was head of the corporate finance practice and since July 1998 I have been at Monitor, where I am a partner and also head of the corporate finance practice here. In addition, between 1988 and 1998 I was also adjunct professor at New York University and I have just been appointed adjunct professor at MIT where I will be teaching a course on financial engineering this coming winter.'

Why should accountants use the discounted cash flow method for valuation purposes?

Copeland: 'The first thing is to understand that the discounted cash flow valuation method is an entity or an enterprise approach where the cash flows from all sources of capital are valued and then one subtracts the value of debt to get the value of equity. The dividend discount model is an approach that is very similar in spirit. What it does is it takes the free cash flows to the shareholders, discounts them at the cost of equity and in fact one gets the same answer as with the enterprise approach.

There is an important additional consideration which is that both the discounted cash flow method and the dividend method are used to forecast the future cash flows, while the intrinsic value method uses historical information. Taking the book value of equity as an example, this has little to do with the market value of the equity and the ratio of market value to book value is rarely equal to one. There are in fact many companies that have negative intrinsic value if one is using the book value of equity as a measure. Book value is therefore not highly correlated with the market value of the company or the market value of the equity.'

What is really new about value based management compared to methods used in the past?

Copeland: 'Value based management should first be defined. The general idea is to find measures of performance at the company level or the business unit level which are highly correlated with the changes in the value of the company, in other words with the total return to shareholders. In an ideal world, if you had measures of performance that were highly correlated with the total return to shareholders then you could link your actions on a daily basis in a very direct manner to the impact on the shareholders of the company. That has proved to be a very illusive ideal so I should mention three different approaches to value based management. The approach that has been very popular in recent years is an approach that has been developed by Stern Stewart from a New York company called EVA (Economic Value Added). The idea is to take the company's return on invested capital and compare it with the weighted average cost of capital for the company. The spread between those two numbers is multiplied by the amount of invested capital to come up with an economic value added figure. In my own publications I call this 'economic profit' in honour of Lord Alfred Marshall who first wrote about the subject in 1896. Recent research that I have conducted shows that the correlation between economic profit and the total return to shareholders or between economic value added and the total return to shareholders indicate is very low, 5% or less. Furthermore, the change in economic profit or the change in economic value added when correlated to total return to shareholders also has very low correlation. The reason for this leads to a second definition of value based management, which I think is better than the first. The basic idea of this definition is that management should be looking at the difference between the return on invested capital they actually earn and the return on invested capital that the market expects them to earn. This is very different to comparing the return on invested capital to the weighted average cost of capital. To give an example, in October 1997 one of the world's most profitable companies, Intel, announced that its earnings were up 19% compared to the year before. So Intel has very positive economic profit. Furthermore, with the increase in earnings the change in economic profit was positive, but in response to the announcement Intel stocks fell in price by 6%. The reason for this was very simple. It was reported in the newspapers that the reason was that the analysts had expected Intel to announce an increase of roughly 23% or 24% and, although earnings were up 20%, they was not up as much as the market had expected. So the total return to shareholders was negative on the announcement. Incidentally, in the third edition of my book on valuation there will be a lot of material on this particular point because when you are talking about the existing assets or core assets of a business, you certainly have to earn more than the market expects. Even where privately-held or family-owned businesses are concerned you still have to earn more than is expected in order to create wealth for the owners. During the last year or two I have come to the conclusion that this second definition of value based management is much more highly correlated with the total return to shareholders. In fact, I have just completed some preliminary research which indicates that the correlations are about 30% to 35% and are statistically significant.'

How do you determine the market expectations for the return on invested capital?

Copeland: 'There are two databases available in the US which contain analysts' forecasts. One of them is called ZACKS and the other is called IBES. These databases go back at least ten years and record the expectations of analysts on a weekly basis. They are representative of the markets' expectations of companies' performance, but they could probably do a better job. I would be happier if they not only captured expectations of earnings, but also of capital expenditures. They could, for instance, make a rough estimate of free cash flows, but the results are far superior to looking at the relationship between economic value added or the change in economic value added and the total return to shareholders. Managers often ask me how they can know what the market expects. There are two or three ways to respond to this. It is possible to see the historical performance of a company by looking at the business units of a company or even the company as a whole. For example, Coca-Cola is a company that has a return on invested capital in excess of 50% year after year. In order for the company to have a high return to shareholders, certainly higher than expected return, they have to earn more than 50% and not just more than 10% which is their cost of capital. If they were to earn only 30% this would be disastrous for their stock price even though they are earning more than their cost of capital. This brings me to my third point which is that, in my opinion, the best measure for performance is to look at the discounted cash flow model of a company. The comparison of the economic profits relative to the expectations of economic profit is a one period measure, while the discounted cash flows attempt to look at the performance of the company over many time periods into the future. I have found that when I correlate the discounted cash flow estimates of the value of a company with the actual market value of that company I get correlations of 80% and above.'

Can you tell us something about your experience with the practical use of value based management? What are the main practical aspects?

Copeland: 'I think there are three things. First of all, choose the right measure of performance. Secondly, create the right mindset in your management team and thirdly, implement for impact. Of course all three things work together. We have already talked about different measures so there is no need to go into that again, except perhaps why it is important not to use some of the traditional measures. For example, if you use earnings per share or the gross earnings per share you

completely ignore any information about balance sheet management. Consequently, companies that focus on earnings are relatively inefficient in the way that they manage their balance sheet. It actually does make a difference whether you generate one dollar of earnings with one dollar of capital or generate the same dollar of earnings with 50 cents of capital. Other companies use return on invested capital or return on assets employed or return on net assets; there are many definitions of the same thing. What I have found is that those measures are better because the income statement information is the numerator and invested capital is the denominator. This is balance sheet information so it represents an improvement over earnings, but unfortunately if you try to maximise the return on invested capital you tend to harvest your business. The easiest thing to do is to let your invested capital base depreciate in order to increase your return on invested capital and after a while you find that you are not competitive. So that is not a particularly good measure either. Some of the traditional measures fail for the reasons that I have mentioned. In my opinion, the best value based management systems have three levels of measurement. At the corporate level and at the business unit level where you have forecasts of income statements and balance sheet, discounted cash flow is a very good tool. For one period performance measurement the difference between actual and economic profit and expected economic profit is probably the best measure. At the plant level where you don't have income statements and balance sheets, value drivers are probably the best way of measuring performance. These value drivers include things like defect rates or on-time delivery or the product mix or, in banking, the creditworthiness of the ledgers. That's all I have to say about choosing the right measure.

The next thing is the whole behavioural science issue. I have seen a lot of value based management programmes fail because the top management was enthusiastic, but the line managers could not understand why they should implement or why they should care. To change the mindset of an entire organisation you need three things. You need the support of top management, you need training so that you can make better decisions and finally you need to change compensation practices so that individual incentives are more closely aligned with the performance measurement being implemented.'

To start such a process do you immediately have to include all levels in the company or do you have to work level by level?

Copeland: 'I think that depends upon the company. I have seen situations where a business unit within a company decides that it wants to try value based management and does this on its own initiative. If it is successful the process migrates to other business units and then eventually to headquarters. I have also seen other situations where headquarters have tried to force the new measure down everyone's throat and there is a rebellion. At one large company where I implemented value based management, the headquarters and the business units were supportive, but the division level managers were actually neutral or negative. The company therefore implemented at the headquarters first and the business units second. The division then had to go along as a result. Other companies try to roll out the system throughout the entire company at a single stroke. Some companies prefer to experiment and choose one or two businesses and try it there and see what happens.'

If you were asked to provide advice, what would you recommend as the best practice?

Copeland: 'I think the most important thing is to try to have real impact. Managers are very practical people and they will want to see decisions made better. They will support the system if it can generate new ideas that are better than those produced by the older decisions. Let me give you an example to illustrate what I mean. At one company I was sitting in the office of the manager of a major business unit when we were interrupted by an important phone call from the president of the company. After the manager had answered the call he turned to me and said: "That was the fourth quarter earnings call. The company as a whole is expected to fall short of its earnings expectations and the president wants my business unit to come up with more earnings." I asked him what he would do. He replied: "I can actually deliver the earnings, but I will have to cut back on my advertising programmes for the rest of the quarter. That will deliver this year's earnings but it will make business that much more difficult next year. I know it's the wrong thing to do in the long term, but the president has asked for more earnings and my bonus depends on more earnings and therefore I will do it." He said that the reason he supported the value based management system was that it has a multi-period perspective and prevented them from doing such silly things. The reason he was supportive was that he believed that the new value based management approach would prevent what he considered to be self-destructive behaviour.'

But is this self-destructive behaviour so important in the market at the moment? Is it not the case that financial markets and financial analysts are pushing towards short-term thinking in the boardrooms?

Copeland: 'I don't think there is any definitive answer to that, but again I can refer to our research because we get analyst forecasts not only on this year's earnings but earnings two years ahead, and then we also get long-term forecasts. Interestingly enough, the forecasts that are two years ahead and long-term forecasts have a higher weight in their relationship to total return to shareholders this year than this year's forecast does. Although it does not answer the question, it does indicate to me that the analysts not only look at this year's earnings, but they look at next year's earnings

and long-term earnings as well. Therefore, the market does actually seem to put high weight on the longer-term estimates.'

Are you in favour of more regulation of financial markets to guarantee both information flows and longer term thinking?

Copeland: 'If analysts and investors demand better information about companies in order to value them why wouldn't the companies supply that information. My personal point of view is that some broad regulations help create the market place for information and help it to work more efficiently. In my opinion, rules that aim to prevent insider trading actually help the market.'

Is the theoretical basis for maximising shareholder value the same inside and outside the US and is the valuation approach outside the US just a copy of the US approach?

Copeland: 'At one level, mainly the official level, there certainly are differences. In Germany, for example, I know that there is an official government approach to valuation that is different from the discounted cash flow approach, although in a recent revision of the government regulations the two are coming closer together but are still not perfectly aligned. On the other hand, I believe the valuation approach that is written about in my book is used as the primary valuation approach throughout the world. The ideas in the book are not original, but I would say the scientific method could be applied to a discipline like valuation. People have tried different approaches to different methodologies for valuing companies over the centuries and the approach that I write about has stood the test of time better than any other approach. Articles on the subject have been published in leading journals. One that was published a few years ago by Kaplan and Ruback (Journal of Finance, 1996), which examined the discounted cash flows against valuation multiples, found that discounted cash flows did better statistically. A surviving methodology would seem to be the one that best explains the reality that we observe and so far the survivor seems to be the discounted cash flow valuation method, at least where large firms are concerned.'

The history of discounted cash flow evaluation goes back to the 1930's and the work by Modigliani and Miller in the late 1950's introduced a more modern approach to the subject. They were followed by many other scholars, including Malkiel and then Alfred Rappaport who took the formula approach and turned it into a spreadsheet approach which is used by most people these days. I have done valuations in 30 or 40 different countries and the discounted cash flow approach works equally well in Japan and in Germany and in the US and in Brazil.'

Do you think there is a relationship between corporate governance and the value of the firm? In your opinion, what are the 'best practices in corporate governance'?

Copeland: 'First of all, the valuation will value any company the way it is with its current governance. The question is whether you can change the value of a company if you change its governance. There is some academic literature that seems to indicate that there is a relationship. All of the evidence is based on data from the US, however, so it is quite limited in its implications for other countries. Nevertheless, there is evidence that when the board of directors of a company changes and introduces more outsiders the market reacts favourably to that announcement. There are also indications that stock prices go up when a company announces changes in compensation from a strict salary and bonus to stock options or stock grants. There are two explanations for this. One is that a better alignment between the management team and the shareholder's objective causes the shareholders to value the company more highly. It could also mean that the management team believes that the company is going to do better in the future and that the shareholders use the options plan as a signal that the company will do better in the future. So the cause and effect for the two explanations are different.'

Corporate governance in every country is inextricably linked with the political environment and the social environment within which corporations operate. I actually think that the most important starting point is to talk about capital and labour mobility within the country, although I don't know of any evidence that shows that changes in corporate governance influence the structure of capital and labour mobility. I can give you an example from my own personal experience.'

The government of a particular country was privatising a government-owned bank. It was put up for sale and I represented one of the companies that was potentially going to bid for the bank. When you looked at the bank you found out that it was very inefficient, the deposits per employee were about half the deposits per employee for competing banks in the same country. You would think that a change in governance, i.e. a change in ownership from government ownership to private ownership, would create a lot of efficiency in the bank and we thought so too until at the end of one week of looking at it we were reminded that in this particular country if you lay off an employee you must pay them four years' income regardless of how long they had been working for the company. Therefore, you will not be surprised when I tell you that labour mobility in this country was very low and unemployment was very high. Therefore, the change in corporate governance (in this case the privatisation of the bank) that was proposed as a solution actually never took place because of this labour law. All the potential private owners except one withdrew from bidding and the one bid was so low that the government rejected it. The government bank is still there, it is still inefficient, labour mobility is still low and corporate

governance can't solve the problem. I don't know of any studies that have been able to separate corporate governance from the entire fabric of society.'

It is common practice is to use the weighted average cost of capital MACO as discount rate, but a new approach is emerging: the APV (adjusted present value), where a discount rate excluding the financial risk is used. Are you in favour of this approach for valuations and/or investment analysis?

Copeland: 'First of all, the APV approach and the discounted cash flow approach are mathematically identical. Therefore, the only differences between the approaches are practical ones. I have an issue with applying the APV approach in situations where there is relatively high leverage and yet these are exactly the situations where it is claimed that the APV approach does better. What you have to do to apply the APV approach is to first of all observe comparable companies to get an estimate of their cost of equity which is a leveraged cost of equity. You then have to use some approach, usually the capital asset pricing model (CAPM), to unleverage the observed levered equity in order to produce an unlevered equity estimate. The operating free cash flows of the company are then discounted at that unleveraged cost of equity to get an estimate of the value of the company if it has no debt. The present value of the debt tax shield is then added to this; the tax rate is multiplied by the interest payments and then discounted at the cost of debt. The advocates of the APV approach focus on the second part of that equation. They say it is much easier in higher leverage situations to estimate the way in which the interest tax shield will change over time and then to discount it at the cost of debt. What I am focusing on is the first term, i.e. the operating cash flows divided by the unlevered cost of the equity. What I wanted to point out is that in order to estimate the unlevered cost of equity in higher leverage situations you have to make an assumption that is not valid. If you look at a comparable company that is highly leveraged and use the formula for unleveraging the cost of equity, the figure that is used assumes that the cost of debt for that company is equal to the risk free rate. That is simply not a valid assumption and therefore the estimates of the unlevered cost of equity are biased. I didn't see anything in the Harvard Business Review article that told me how to correct for that bias. I do have some proprietary ways of correcting for that bias but the Harvard Business Review article focused entirely on the advantages of the second term and didn't even mention the disadvantages of the first term. If I thought that the APV approach was better I would be using it, but frankly I find it more cumbersome.'

A lot of research is being performed into the cost of equity and the capital asset pricing model (CAPM). Is the CAPM an adequate method for estimating the cost of equity? What is your opinion about adding a 'small firm premium' to the CAPM as some of the larger accounting firms do?

Copeland: 'My opinion is that there is nothing conclusive yet. The article that was written by Fama & French in 1992 started a careful reexamination of the problem because their conclusion was that, after carefully controlling for the size of the company and the book to market ratio, they found no evidence that these added anything to explaining the cost of equity or the cross-sectional differences in the rates of return on equities. There has been some subsequent work that has been somewhat critical of Fama and French. First of all, it has been pointed out that when they did their work they had to use two databases instead of one. Traditionally, research in this area has used the CRSP (Chicago Research & Securities Price) database, which is a good database because no company ever leaves the database. Once a company is listed it is given a permanent number and even if the company goes bankrupt the permanent number remains on the tape indicating that the company has once been there. They added to the sample by going to Compustat, which had extended its database by adding a lot of small firms. When it did so it created a bias in the data because the small firms that were added were those from the total set of small firms that had survived up to that point in time. So implicitly, when you combine the two databases the rates of return on the smaller firms in the database are higher than they otherwise would be without the survivorship bias problem. It is believed that this induces the small firm effect that was found in Fama & French.'

There is a very nice paper by Kothari Shanken & Sloan that clearly illustrates the problems in Fama & French and when other authors redo the work they find that beta is in fact once again significant in explaining the cross-sectional differences in returns. You find that people are taking the Fama & French result and ignoring later evidence and coming to the conclusion, for example, that a risk premium be added to small firms. My suggestion is that they look at all the evidence and not just some of the evidence. I have read the literature very carefully and I would say that the jury is still out on the applicability of the capital asset pricing model. We still use the capital asset pricing model framework, but we have changed the way that the market risk premium is estimated. Remember that the market risk premium is the difference between the expected return on the market and the risk-free rate and that is what you multiply with the beta in order to add a risk premium to the risk-free rate to get the cost of equity. In the second edition of my book we use the long-term geometric average return on the market to estimate the market risk premium. In the third edition we have changed to the long-term arithmetic average which is a higher number. We are also aware of the fact that there is undoubtedly survivorship bias in using the New York stock exchange index. When we subtract the survivorship bias from the long-term arithmetic US exchange return we get a market risk premium in the 5-6% range.'

Can you explain the link between the concepts of option theory and valuation? Is option theory useful in practice and if so, how do you aim to convince managers that it is useful?

Copeland: 'Real options are an emerging field of financial engineering that in my opinion will completely replace net present value in the next 10 years. The reason is that net present value is a flawed model for evaluating projects.

A typical example of a net present value problem would be a project that is expected to last 10 years; you have forecasts of the expected growth of revenues and the expected costs, so that allows you to figure out the expected free cash flows net of the working capital and capital expenditures. You then discount those free cash flows and the weighted average cost of capital and subtract the initial capital investment. If the resulting number is greater than zero, the project is said to have a positive net present value and so you should accept it. The problem is that managers who experience these decisions know that that approach is full of implied assumptions that are rigid or even wrong. For example, if you start a project and it turns out to be going badly, it will not last ten years but will be either abandoned or scaled down. Furthermore, if it is a successful project its life will either be extended or it will be scaled up. Finally, no one says that the initial investment has to take place right now, it could take place next year or the year after, which is a deferral option. All managers know that there are abandonment options, extension options, contraction options, expansion options and deferral options in every project. Experienced managers have all been in situations where they have taken the net present value numbers and basically thrown them away, because their intuition told them that flexibility will add value to the project. If you frame the issue in that way you therefore begin to realise that net present value is very limited.

If the net present value is so limited, why is it being used so much? The reason is that there are many situations where the difference between the net present value answer and the real options answer is quite small. There are situations where the net present value is very high, for example if there is no need to have the flexibility of shutting the project down, as you will never exercise that option. Similarly, if a project has a huge negative net present value, no amount of flexibility provided by options will save it. But interestingly enough, companies are turning to experts and real options to help them to think through problems in the case of the projects that have a net present value close to zero, the ones in the grey area, where you can get differences between real options valuation and net present value which are in the order of 100%. Perhaps only one in ten projects that fall into that category, but I'll give you some examples where real options should be used.

The decision facing Airbus and Boeing about whether or not to build a 500-600-seat passenger aircraft is in a grey area and represents a huge investment of \$10 billion and 10 years of development for either company. Other examples in the transportation area are Taiwan Rapid Rail or Railtrack in the UK. These are \$10-20 billion investments that will take 20-30 years to finish and are also in the grey area.

During the last five years, people have started to realise that you can't use Black & Scholes or in fact any other closed form solution for a real options problems. You really have to use a lattice approach, the simplest example of which is the binomial tree. Research and development programme investments are usually multi-phased so to solve problems you need to build a decision tree and a lattice behind it. One of the advantages of this approach is that you really only need to be able to point to one branch in the lattice at a time and explain to a manager how that branch is priced. I predict that over the next ten years you will see more and more applications of real options in major project decisions. Academics are increasingly coming to the point of view that this is the only way to teach investment decisions and that net present value is a special case of real options.

Scientific methods have been applied to explaining the prices that we observe in the market place. If the discounted cash flow method did not work well, we would be using some other method. However, it does explain reality very well. Financial markets must have proper information about companies in order to put proper values on them. This is why the shareholders of a company require monitoring and financial statements. It is not the government, but the shareholders that require financial statements. If there were no regulations we would therefore still have financial statements. The quality of the information is aided by a certain amount of standardisation imposed by regulations requiring that information be released. None of what we have talked about can work very well unless the market has had good information. What we are seeing around the world is that more and more markets are opening up and information is flowing better and this means that the tools of modern corporate finance can be used much more effectively.

In my opinion, regulations can hurt as well as help. When governments decide to defend currencies or restrict flows, the free markets cannot work. On the other hand, governments do help to some extent by imposing standardised requirements. I would like to see more open markets where individuals can be confident that when they make a trade the settlement of the trade will take place in an orderly fashion and that the transaction is secure.'

In your opinion, what will be the hot topics in finance in the coming ten years?

Copeland: 'I think that international finance will be a clear area of development. I think that real options will develop. Hot topics will continue to be the intelligent use of derivatives and the entire debate about the capital asset pricing model and the arbitrage pricing model and competing models. In addition, the relationship between the organisation of decision

makers and the ability to create value will be a hot topic that will find its expression in the form of corporate governance issues and value based management and performance measurement.'

Spurred on by the success of the Dutch-language "Fifteen on Finance", published in 1996, the editorial board of the 'Fifteen' series presents a special publication of Royal NIVRA's Continuing Professional Education Committee (VERA). An in-depth exploration of corporate strategic financial policy, made accessible for a broad public.

"Strategic Finance in the 21st Century (15 expert opinions)" contains interviews with Nobel Prize winners Markowitz and Miller, with experts in various fields, such as Copeland (on valuation), Benartzi (on behavioural finance), and with leading Dutch-Belgian financial specialists (The Dutch Minister of Finance Zalm, Bilderbeek, Dorsman, Feenstra, Glasz, Hommen, Van den Goorbergh, Keuleneer, De Korte, Lintjer, Meijer, Van Steenberge, Swagerman, Thibeault and Traas).

The publication includes subjects such as financial risk management, the creation of shareholder value, plus the associated Value Based Management process, issues with respect to the so-called 'value gap' with its contingent agency problem and the question whether transparency can be increased by improving the implementation of corporate governance. Also covered are shareholder value performance indicators, such as Economic Value Added (EVA). Visions are given on the evolution of financial institutions, partly in the wake of mammoth mergers, and the evolution of the financial markets following the introduction of the euro. In other words, a subject that no one can or wants to steer clear of.