

Internet Valuation

Why Are The Values So High?

- Uncertainty and volatility drive values, it is counter-intuitive
- The extended sector is mutually supportive and develops new technologies and capabilities at a rapid pace
- EVA[®], with capitalised research, development, marketing and advertising is very superior to earnings in this sector
- Traditional option pricing concepts explain the value of uncertainty and volatility
- Real option approaches help understand how this is applied
- The AOL/TimeWarner merger does not create much value, perhaps due to the forfeiture of valuable options
- Europe is behind North America, but is coming on strong
- There are eight important strategies for success as old world companies compete in this risky new world

EVALuation is a series of periodic reports from Stern Stewart Europe Limited, drawing on the depth of our experience and internal research, to cover issues of valuation, organisational design, decision making, remuneration, and corporate governance. We assist in understanding how actions affect value. We believe that all stakeholders benefit from the creation of value through both innovation and efficiency.

“Since the 1950s, the dawn of modern corporate finance theory, nothing has captivated investors and managers as profusely as the current debate on the valuation of internet companies. The shares in these companies are essentially options to participate in the future of the new economy and it turns out that the breadth of uncertainty and the volatility of expected outcomes is what is driving the option values so high. The important strategic insight is that every company must participate and should invest in opportunities for the future that provide valuable real options to the company.

Every chief executive must steer his or her company into this great unknown and understanding the drivers of value in this sector is critical to success.”

Gregory V. Milano, Managing Director, Stern Stewart Europe Ltd

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Executive Summary

Value explosion	Why are internet share valuations so high? With all the hysteria, we decided to provide a primer on why this sector is valued so highly. Many business leaders fear the risks but it is, in fact, the uncertainty and volatility that drives the share values so high. This is true even if we leave aside who will win and who will lose. The possibilities for the sector are extensive.
The extended sector	The extended sector includes <i>Dot Coms</i> , content businesses, e-appliance manufacturers, platform providers and telecom companies, providing rapid interactive development and mutual support. If telecom achieves greater bandwidth, everything changes. The sector looks much like a pharmaceutical company, with currently marketed drugs, products in development and the know-how to develop new compounds in the future. Investors accept pharmaceutical values but reject the economically similar characteristics of stand-alone internet companies.
EVA tracks value	What about the lack of profits? We have always claimed that accounting is not useful information to investors. In the new economy, this is truer than ever. To track performance of these companies, use EVA [®] and treat expenditures on research, development, selling and marketing as investments, not period expenses.
Option value drivers	In addition to better performance measures, we need a framework for considering the value of future options. Options provide the right, but not the obligation, to take an action. From financial theory, the value of an option is driven by the current share price, the exercise price, the risk free rate, the dividend yield, and the length of time and volatility. It is the participation in the upside while being insulated from the downside that creates an option premium.
Opportunities are real options	Companies of all types are faced with real options every day, but the internet provides more options than ever before. For example, if a company has substantial content and a large subscriber base, they stand to gain when bandwidth increases. As with financial options, the value rises dramatically when volatility and uncertainty are high. Every day, many real options increase in value. Of course, some decline in value too.
AOL/Time Warners forfeiting options?	Despite all the publicity, the AOL/Time Warner merger has not created much wealth, and has actually deflated the value of AOL. There are many possible explanations, but could it be that some of the options the two companies held have been forfeited?
Europe catching up	Europe is two to three years behind the U.S. but the gap is closing. The web, more than anything, breaks down hierarchies and puts power in the hands of the individual. European culture is based more on collectivism and it is hard for individualism to garner as much support. There is greater concern for regulation as well. But there have been numerous great successes including Brokat Informationsysteme, Freeserve, QXL and Tiscali.
Strategic thoughts	What are the strategy implications for the new e-world? Strategic Thought #1: Whether old or new, rapidly take full advantage of the web. Strategic Thought #2: Be more patient with internet investments. Strategic Thought #3: Ignore accounting statements, treat research, development, selling and marketing costs as investments and measure business performance with EVA. Strategic Thought #4: Experiment and accept failure as integral to the learning process. Strategic Thought #5: Think outside the box about ways the interconnected world can help you deliver your product or service more efficiently, or make your offering more valuable and differentiated from competitors. Strategic Thought #6: Invest in real options and position your company to have as many valuable opportunities for the future as possible. Strategic Thought #7: Recognise the value of human capital and allow the true stars to participate in the success of the organisation. Strategic Thought #8: Stop thinking about survival and take an offensive position.



Introduction

Does it make sense?

Have we all gone mad? Logical, rational, sensible people; some with Nobel prizes in economics; are having serious debates about whether the market values of internet companies make any sense. As Geoffrey Colvin notes in the 24 January 2000 *Fortune Magazine*, “America Online is worth more than GM, Ford and the entire American steel industry”. It may be the start of the new economy, but is this genuine?

Framework for valuation

We will not attempt to convince you that the market has overvalued or undervalued these shares, but we will explore the drivers of this value and provide a framework for valuation that helps you form your own judgements. Based on this, many readers will agree that the valuations are possible, even if they get nervous when they think such thoughts.

Abundance of uncertainty

The future has never been so abundant with uncertainty as it is now. Just how will our existence evolve as entrepreneurs find ways to change as many facets of our work and pleasure as we will accept? It seems the answer to this question depends on whom you ask. But one thing is for sure. The range of possibilities is quite wide. And as it turns out, it is this canyon of uncertainty that drives the values so high.

The advocates see a dream

None of us can truly be sure how it will happen, but the internet and related technological applications will have a dramatic impact on our normal daily lives. With expanding network participation, enhanced available content, refined e-commerce standards, usable smart web site technology, rapid speed and volume of transmission, exciting new e-appliances and all the rest; everything we now do could change. If we listen to the advocates, the possibilities are incredible.

A nearly free video phone call between a sister in London, a brother in Phoenix and a mother in New York will become a routine way to renew family ties with a sense of reality we simply cannot appreciate today. It will be based on crystal clear real-time sound and sight. Everything we buy will be easier. Every time we need information, it will be available. When we want to see a movie or the atmosphere in a restaurant we might visit tonight... we will just dial it up and watch it.

Shopping will improve. If we want to buy a car, we might go to the web sites (or future equivalent) of a few manufacturers and see what they have available. If interested, we might pick a model type, an engine and transmission combination, an interior package, a combination of options and a colour scheme. We'd be able to see what it's like in high quality 3D with the ability to rotate it and zoom in or out as much as we like. The system may even have a smart artificial intelligence advisor to point out alternatives we might consider. As it sees our responses, it might tailor the suggestions to suit our taste. The whole shopping experience can not only be more efficient, but more fruitful as well.

How will work change? Who needs paper, or filing cabinets, or desks, or offices, or even computers? We will work from wherever we are and will avoid wasted commuting time. New appliances will be our communication devices, our information storage and retrieval devices, our calendars, and our virtual offices. We may be able to devote almost all our time to value adding matters, without being bogged down by the mundane tasks that only the highest paid business people with multiple experienced assistants can avoid now. In a few decades we may not even remember using a keyboard or mouse, as it will all be voice recognition. Imagine how productive we all can be? Imagine how much money businesses will pay for the technology, the systems, and the networks to reap the productivity gains.

'Recipes' that are globally scalable

And much of this is delivered with almost no capital investment and very low variable costs. Professor Paul Romer from Stanford University has developed a view he calls the soft revolution where he tries to explain the ever-increasing rate of economic growth despite constraints on physical resources. He claims there is an increased emphasis on developing proprietary 'recipes', the plans for products, services and technologies. Successful companies are not those with the smartest human capital, but those that are successful in transforming the innovative ideas of their human capital into business formulas that are the property of the firm. This is then globally scalable with negligible cost.



Skills codified in software

Consider Amazon.com, where a vast effort is continuously aimed at increasing the effectiveness of the web site software toward giving the shopper a true ‘personal shopping experience’. The site remembers what you have purchased and suggests related products that may be of interest. Buying a book on ballroom dancing? It will tell you what others have thought of the book and suggest instructional videos and CD music. And it does this more thoroughly than many sales people would with neither variable cost nor variation in quality based on the skill or mood of the sales person. The selling techniques have been codified in software that is easily scalable to as many customers as can be attracted. The potential for value creation is enormous.

The fortune

The main provider and acquirer of value will be those leading the charge into this great beyond – the human capital that creates and owns the business models to make it all possible. To be sure, the collective productivity of all of earth’s inhabitants could grow in a way we have never experienced before... 10 times, not 10 percent! Those that make it happen stand to make a fortune.

Is it all hype?

Or maybe not. Maybe this is all a stack of hype. Maybe the world will not change this much after all. Even if the technology and the ideas are there, how much change will people accept? Will the new paradigm be accepted over decades like television and mobile phones? Or will it happen overnight like compact discs? Sceptics think these sorts of changes take time and as a result they feel that over the foreseeable future all the internet provides is a bit more retail efficiency. It is a new distribution channel, that’s all. And competition is likely to deliver all the benefits to consumers anyway.

If we look at a typical retail operation, goods are purchased by a purchasing agent who works for a merchandising manager, who works for the director of merchandising. This person is on the management committee with the director of retail operations who leads a store manager, who leads a department manager, who leads a sales clerk. This sales clerk speaks to the customer and feedback must travel up and down the hierarchy to impact future buying decisions. It is an expensive structure and it is tough to stay in touch with customer needs.

Margins under pressure...

In e-tailing, as internet retailing is called, the customer has only the web site between him and the merchandiser/buyer. The process is completely streamlined, cost is dramatically reduced for both the customer and the company, and feedback is direct and instantaneous. As Lord Kenneth Baker says, ”distribution margins will be under immense pressure. This is what the internet does more than anything else. If goods can be sold as easily as this, they will incur fewer costs. The balance has shifted to the consumer.”

...from competition?

This, of course, raises the question of how the value distribution will take place. Will competition deliver all the benefits to consumers? Will companies be able to differentiate themselves sufficiently to retain enough of the value to justify current share prices? It seems the investment market thinks so. Do you?

Who should we listen to, the advocates or the sceptics? The uncertainty on how much and when the world will change has been the subject of more articles, speeches and interviews than anything since the wheel, or maybe even fire. Most of us are so fed up with it that we do not want to listen to the advocates or the sceptics any more. It is so confusing and uncertain.

Uncertainty and volatility drive value

Do not lose sleep over worrying about who is right. It turns out that the wide range of possibilities is exactly what is driving value. Even if we leave aside who will win and who will lose, that is to consider the whole extended sector as one valuation problem, there is still an enormous range of possibilities. And the act of buying the shares in these companies is akin to buying an option to participate in this wildly uncertain future. And option valuation theory tells us that as the volatility of potential outcome scenarios increases, so does the value of the option.

But what about the fact that these companies do not make any money? How do we calculate a price/earnings ratio? How do we compare valuations? Do we look at value per subscriber,



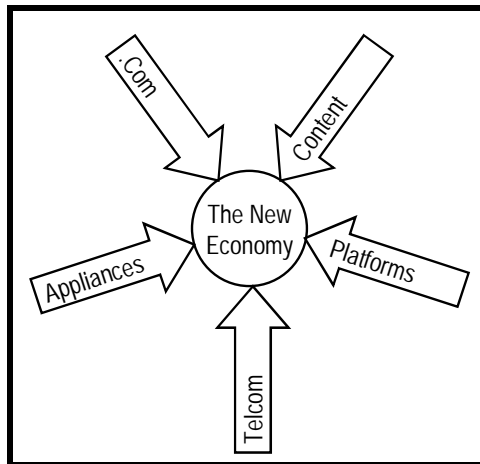
value per ‘hit’, value per transaction, or some other new multiple? Regardless of what you believe will happen, you just might believe the valuations make sense.

The Extended Sector – Mutual Support

Forget who will win, the sector is uncertain

If we first think about the value of the extended sector, then consider who will win and who will lose, we have an easier time grasping the issues. Who would have guessed in 1980 that Microsoft would replace IBM as the powerhouse of computers? But we all could have predicted that the use of computers would rise and someone would make a lot of money. Too many commentators waste too much effort discussing whether AOL will win, or Amazon or eBay. Before we even consider the relative slice of the pie, and the high variability in this, we should consider the size of the pie, which itself has a very wide range of possible outcomes.

The sector, as it should be considered, is really made up of several sectors in the traditional sense. We start with the ‘.com’ companies. But these would be of little interest without content, so we must consider companies that own content. These are the media companies such as Time Warner and Disney, but includes any company that owns content of interest to people such as maps, census data and encyclopaedia. Next we consider appliances, which is the new word for any piece of e-equipment such as computers, televisions, phones and a wide range of focused application appliances beginning to come to market now. This sector includes equipment providers such as Dell and Sony, but also includes important suppliers to them such as Intel. Then people need platforms such as search engines and operating systems to be able to use their appliances, so companies such as Microsoft and Yahoo fit in. Finally, we need a means of communications so the telecommunications companies including telephone, wireless and cable providers are included.



Rapid interactive innovation

The importance of considering the extended sector comes in two forms. First, innovations in one sub-sector can transform all the other sectors immediately. If the telecommunications folks figure out how to get ten times the volume down the copper wires connected to most houses, this allows more elaborate web sites with lots of video and user friendly features. Content such as high quality video which is now nearly unavailable on the web will suddenly be readily accessible. The state-of-the-art for ‘.coms’ goes up to the benefit of content providers and this requires new appliances and platforms. The frequency of innovation in this group of sub-sectors is remarkably rapid.

Value now or later?

When we consider the extended sector as a whole we see some companies with different mixes of value contribution over time. We break these into three groups. There are those that are creating a lot of value now with some prospect for growth in the future, and we label these Type 1 (T1) companies. There are others that create some value now with a higher percentage of value dependant on the future. These are Type 2 (T2). Finally there are those creating very little value now but with enormous value being attributed to the future which we label Type 3 (T3). It is this last category that has people most concerned about the reality of valuations.



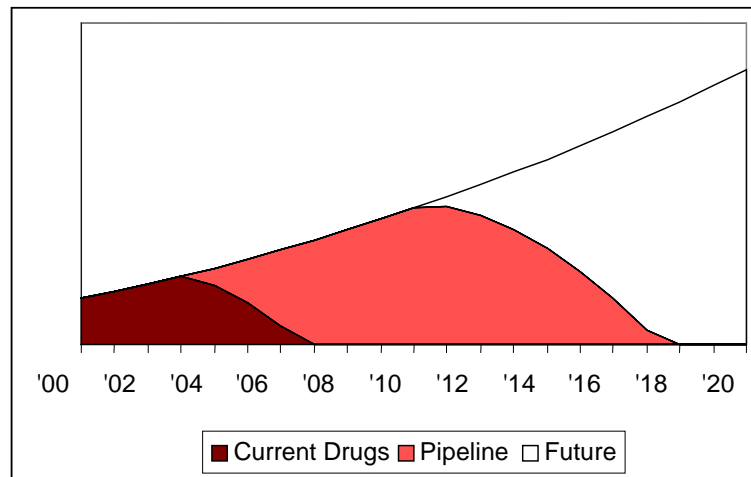
Pharmaceutical analogy

The collective group of T1s, T2s and T3s can be thought of much as we view a pharmaceutical portfolio. A pharmaceutical company has a group of drugs it now markets that typically produce very high current value and may have some opportunity for growth. These are T1s. They also have products which are just being launched in some markets with others to come. The current value contribution is positive but modest and the future potential is still very high. These are T2s. Then there is the pipeline of compounds which drain resources now but are expected to create substantial value in the future. These are T3s.

Internet stocks are like the pharmaceutical pipeline

Investors accept that the pipeline of a pharmaceutical company contributes significantly to the current valuation of the company even though these compounds are running losses and draining resources every year, and do not promise the chance of profit contribution for many years. Yet many of these same people are unwilling to accept that an internet stock with similar economic characteristics may contribute considerable value as well. The dynamics are the same except the pharmaceutical compound is being managed inside a company which is also producing products that deliver profits now. The internet stock is out on its own. Does this add to or detract from value?

There is another component of pharmaceutical valuation to be considered. It is generally estimated that 15 to 40 percent of the value of a pharmaceutical company comes from the long term future – compounds that are not yet in the development pipeline and may not even have been discovered by researchers yet. In other words, the market is willing to recognise that although we do not know what they will be working on in the future, it is likely to deliver value. So the value creation profile of a pharmaceutical company looks something like this:



Value of unidentified future

The value of the ‘unidentified future’ plays an important role in the value of pharmaceutical companies. This applies to the extended internet sector as well. Some of this future value is contained in the T1, T2 and T3 companies that now exist. Due to patent lives, future value must come from new compounds in pharmaceutical companies, but internet companies have no definitive life dictated by a patent so they can have future value beyond the life of current products. Of course, some of the future value will come from companies that are now emerging or may not have even formed yet.

If we take the extended internet sector as a whole, we see a valuation problem that is very similar to valuing a pharmaceutical company. The difference is that in pharmaceuticals we have many integrated companies who perform research, development, production and marketing. They own currently marketed drugs, a pipeline of potential drugs and the know-how to create new drugs in the future. In the internet world, we have T1 companies that often own some T2 and T3 activities, but we also have numerous T2 and T3 companies that operate on a standalone basis. We need to be able to value these without looking at any meaningful current performance.

The pharmaceutical industry would be an even better analogy if the integrated companies would dissolve into a series of parts. We could separate R&D from marketing. We could



**Intergration
verses
segmentation**

further separate research from development and each could be separated by therapeutic area. Then we could look at how the compounds in development, when coupled with the know-how to develop new compounds, are valued in the market. There are some biotechnology research companies that look just like this and they attract large values despite a lack of current performance. It is unlikely that we will see as much segmentation in pharmaceuticals as we see in the internet sector as the trend is toward consolidation, not detachment. And this is with good reason since there are potentially huge economies of scale in production and marketing of pharmaceuticals. Although there are economies in telecommunications, purchasing and shipping, scale is much more accessible to new internet players by virtue of the medium.

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No current profits

The essence of valuation is so simple it is elementary but the application to real world situations can be complex and unwieldy. This has never been truer in recent times than with internet shares. With little or no current 'profits', a dearth of hard assets and an overhang of management share options, how could we possibly attribute real value to such an entity? Yet, as of the end of the last millennium, Yahoo was worth \$110 billion, or about 7.5 percent more than Glaxo Wellcome, the leader of our European Market Value Added (MVA) ranking. This is more than double the entire value of the Credit Suisse Group. Many are willing to accept that the new economy is going to dramatically change the world, but let's be serious!

Is DCF practical?

The basic premise of modern corporate finance is that value is the sum of the present values of all future free cash flows a business is expected to generate. An investor need just forecast her expectations for the future revenue, cost and capital; convert each year to a free cash flow figure; and calculate the present value. Simple, right? What's the Yahoo cash flow forecast for 2014? What is the terminal value, or the assumed value at the end of the explicit forecast? With the cash flow approach applied to a business with such a significant expected future, we find the really important numbers are almost impossible to forecast.

**EVA is NOPAT
less capital costs**

Thus, we prefer our economic value added, or EVA, approach. The calculation is simply the net operating profit after tax (NOPAT) less a charge for the capital (adjusted net assets) used to deliver that profit. EVA explicitly recognises that investors expect a return on their investment to compensate them for the time value of money and the risk of the investment. And the annual EVA performance measure can neatly fit into the valuation formula:

Value = Capital + PV (EVA)

**NPV equals
present value of
EVA**

It turns out that value determined from this formula will always be exactly equal to value derived from discounted cash flow. The benefit of EVA for valuation is that a greater percentage of the value appears in the earlier years, where forecasting is more practical. Our studies show that in a typical ten year discounted cash flow analysis, 50-80 percent of the value is in the terminal value. With the same forecast, only 20-40 percent of the value is in the terminal value when EVA is applied. This helps give valuation experts more comfort with their answers.

**EVA shows the
pattern of value
creation**

But the benefit of EVA goes beyond this by correctly treating as capital those cash outlays which represent investments as opposed to current expenses. It allows us to see the pattern of value creation, not just the present value. In our forecast, what is the year-by-year contribution to value? Cash flow just doesn't tell us. For example, many successful companies are investing heavily to grow and the resulting negative cash flow doesn't tell us much about performance each year. EVA, on the other hand, tells us how much contribution there is each year. Does the profit this year justify the cumulative investment we have made thus far? Security analysts have an easier time checking that their forecasts make sense.

How does this help us to value internet stocks? Most of these companies do not even have profits, let alone enough to cover a capital charge! Of what use is EVA?



Treat research, development, marketing & advertising as investments

Here we see a shortfall of accounting, not EVA. In the 1970s, the accountants decided to end the practice of capitalising R&D expenditures as investments, and began expensing them in the current year. I guess the accountants think all the value is expected to materialise in the year the R&D money is spent? It seems that this might be a bit conservative and perhaps we should capitalise R&D and amortise it over its expected useful life for EVA purposes. And maybe we should do the same for product launch costs and brand building advertising programs. Actually, this is the majority of the investment focus in new economy companies so in fact the entire accounting framework is pretty useless for these companies.

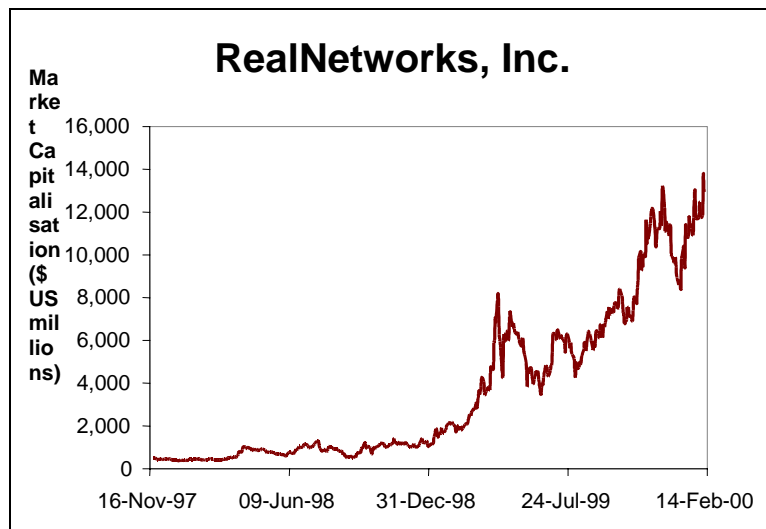
If we look at the financial statements for RealNetworks, Inc., we see the following:

Accounting	US\$ Thousands			
	1995	1996	1997	1998
Revenue	1,812	14,012	32,720	64,839
Cost of Sales	62	2,185	6,465	12,390
Gross Profit	1,750	11,827	26,255	52,449
General & Administration	747	3,491	6,024	9,841
Selling Marketing & Advertising	1,218	7,540	20,124	32,451
Research & Development	1,380	4,812	13,268	29,401
Goodwill Amortization	0	0	0	1,596
Net Operating Profit	-1,595	-4,016	-13,161	-20,840
Percent of Sales	-88%	-29%	-40%	-32%

Accounting is useless for internet stocks

This provides striking evidence of the negative bias accounting aims at research, development, selling and marketing costs, which harms the perception of operating profit of an internet company. How are investors supposed to use this information to understand performance? Even worse, if we paid people bonuses to generate operating profit, they would be motivated to cut the research, development, selling and marketing costs which would be precisely the wrong strategy. Treating the expenditures as period expenses is like charging the cost of a chemical plant against the operating profit in the year the plant is built. Pretty senseless.

Despite the horrible accounting earnings trend, RealNetworks, Inc. has had stellar share price performance since flotation:



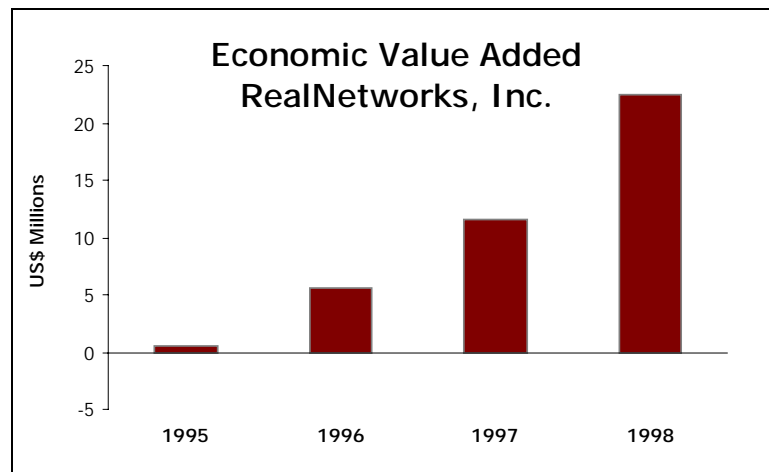
Does EVA do a better job of tracking the value of this business? When we adjust the financial statements to treat research, development, selling and marketing as investments with a five-year life, we get the following:



Economic	US\$ Thousands			
	1995	1996	1997	1998
Gross Profit	1,750	11,827	26,255	52,449
General & Administration	747	3,491	6,024	9,841
Amortization of Cap. SM&A	154	1,074	3,529	7,488
Amortization of Cap. R&D	193	780	2,399	5,986
Net Operating Profit	656	6,482	14,303	29,134
EVA	639	6,336	12,672	25,797
Percent of Sales	35%	45%	39%	40%

EVA tracks internet value

We at Stern Stewart have always claimed that accounting standards do not provide very useful information to investors. With companies from the new economy, this is truer than ever. It has made great journalism to continue speaking of companies with high valuations and no earnings, but this is just because the accounting is systematically flawed. Investors and managers tracking performance of these companies should use EVA and should treat expenditures in research, development, selling and marketing as investments, not period expenses. EVA for RealNetworks, Inc. is in fact quite strong:



COV and FGV

Next we turn to the components of value. If we further develop our EVA valuation equation, we see that the present value of future EVA has two components. The first is simply the present value of EVA if we assume the current EVA is repeated forever. This is calculated as the current EVA divided by the cost of capital. When this is added to the capital base, we can see what the company would be worth if the market thought current performance would be repeated forever. We call this the Current Operations Value, or **COV**.

The second is the present value of expected improvements in EVA from this point forward. We call this the Future Growth Value, or **FGV**.

$$\begin{aligned}
 \text{Value} &= \text{Capital} + \text{PV}(\text{EVA}^{\circledR}) \\
 \text{Value} &= \text{Capital} + \underbrace{\text{EVA}^{\circledR}/c}_{\text{Current Operations Value}} + \text{PV}(\text{Expected Improvement}) \\
 \text{Value} &= \text{Current Operations Value} + \text{Future Growth Value}
 \end{aligned}$$

Where 'c' is the cost of capital

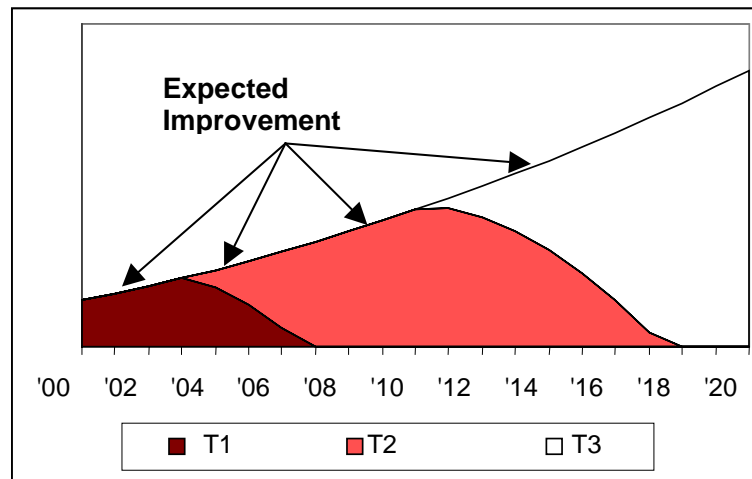
For companies where the **FGV** is a substantial percentage of the total enterprise value, we should consider the components of **FGV**. Of course, virtually all new economy companies have the majority of the current value in **FGV**.



The sources of FGV

There are three primary sources of **FGV**. First, we have the expected growth in performance from currently marketed products, which is T1 value. Second, we have the expected contribution of products in development that are just being released, which is T2. Finally, we have the benefit of products that the company has not even identified yet. This is the value investors are willing to assign to a company to recognise that there is some probability that a successful team will still come up with new ideas far out into the future, which is T3. This is just like our pharmaceutical example earlier.

Using the formula above, it is possible to portray the expected changes in future EVA implied by the share price of a company. We answer the question, “at what rate of EVA growth would we achieve a present value consistent with the present share price?”



When a considerable amount of a company’s value is in **FGV** and that future value is quite variable, a better understanding of intrinsic value may be gained by applying ‘real options’ techniques. This is almost becoming a cliché in financial circles but our experience is that a minority of those who talk about option techniques truly understand their relevance or practical use in valuation.

We will address this by beginning with a straightforward financial option to buy a share and then will extend this thinking to real options and the new economy.

Option Valuation

The call option

The most common type of financial option is the ‘call’ option, which provides the holder with the right, but not the obligation, to buy a share over some specified time frame (the exercise period) for a specified price (the exercise price). Consider an example of a company that has a share price of EUR10 and an investor, A, chooses to sell an option to another investor, B. Investor B gains the right to purchase a share of the company from investor A over a specified time period for EUR8. What would investor B have to pay investor A to acquire the option?

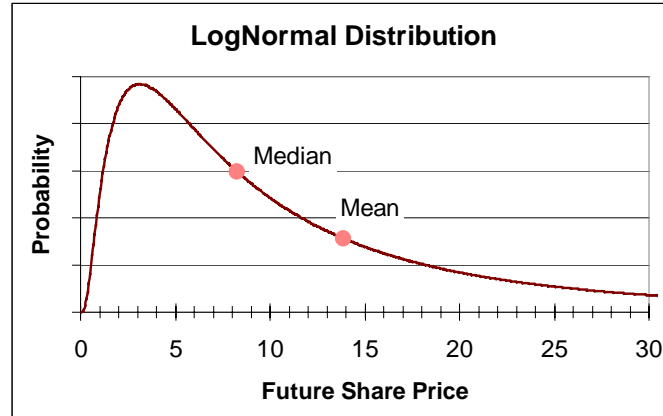
The ‘right’, but not the ‘obligation’

A quick look at the figures would show that if the option were exercised immediately, investor B would be able to buy the share for EUR8 and sell it for EUR10, yielding a profit of EUR2. This is called the ‘in-the-money’ value, but the option has much more value than just EUR2. If the share price goes up, investor B gets all the benefits, but if it goes down below EUR8, investor A realises the loss. It is this participation in the ‘upside’ without exposure to the ‘downside’ that gives options a premium value. Giving the ‘right’, but not the ‘obligation’, to purchase is the key feature of options.

Let’s think about this a bit more scientifically. At a given point in time we know what the price of a share is on the market but we do not know what that price will be in the future. We may be able to determine the expected return but, of course, the share price could grow more



or less than this. Many financial economists believe the potential future share price of a given company can be explained by a log normal distribution. This is a distribution of possible outcomes that is quite bunched up on the left and has a long tail to the right. Due to limited liability, share prices cannot drop below zero, yet there is some small chance that the share will do spectacularly well on the upside.



The long tail to the right is common

On 30 January, 2000, Barry Riley wrote in the *Financial Times*, “The S&P 500 returned 21% last year but the median stock returned zero, which is another way of saying that 250 stocks lost you money. You had to be in technology”. Although this sounds startling, it is not an uncommon outcome. We usually see a small percentage of shares that do so well that they pull up the average to a point well above the median. In the diagram above, the median is the point where half the expected outcomes are on the left and half on the right. The mean is the average of all the points, weighted by probability. The long tail on the right drags the mean to the right of the median.

The elimination of potential outcomes

In considering the option in our example, we just subtract EUR8 from all the potential future share prices, and since we are not obligated to exercise the option, all resulting points that are negative become zero. **It is the elimination of all these potentially negative outcomes that causes the option value to always be above the in-the-money value.**

Black-Scholes

In 1972, Fischer Black and Myron Scholes developed the famous Black-Scholes Option Pricing Model. In essence, this model values an option as a function of the current share price, the exercise price, the risk free rate of return that can be earned in the market, the dividend yield (lost to option holders), the length of time over which the option can be exercised and the volatility of the share. The impact on valuation is as follows:

1. The **higher** the current share price, the **higher** the option value
2. The **lower** the exercise price, the **higher** the option value
3. The **lower** the risk-free-rate, the **higher** the option value
4. The **lower** the dividend yield, the **higher** the option value
5. The **longer** the period of exercise, the **higher** the option value
6. The **higher** the volatility, the **higher** the option value

This last point is very important to our discussion of internet stock valuation, as the option value is quite high for shares that are highly volatile. It is, in fact, the high degree of uncertainty about the future and the many options available now and in the future to these companies that cause their value to rise so dramatically. To consider the impact of some of these variables, the following table illustrates the value of a call option under various combinations of exercise price and volatility:



Value of Call Option
(Option matures in 5 years, pays no dividend, Spot price = EUR10.0, Risk-free rate = 6.5%)

		Volatility									
		10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Exercise price (% of Spot Price)	0%	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000	10.000
	25%	8.175	8.175	8.180	8.214	8.294	8.415	8.562	8.722	8.884	9.041
	50%	6.351	6.362	6.464	6.680	6.966	7.283	7.608	7.924	8.222	8.496
	75%	4.528	4.660	5.009	5.461	5.946	6.429	6.894	7.329	7.729	8.089
	100%	2.770	3.236	3.857	4.507	5.145	5.755	6.327	6.854	7.332	7.761
	125%	1.360	2.165	2.973	3.756	4.503	5.206	5.859	6.458	6.999	7.484
	150%	0.533	1.416	2.301	3.160	3.978	4.749	5.464	6.120	6.713	7.244
	175%	0.175	0.916	1.793	2.681	3.543	4.360	5.123	5.825	6.462	7.031
	200%	0.050	0.590	1.407	2.293	3.176	4.026	4.826	5.565	6.238	6.841
	225%	0.013	0.380	1.112	1.974	2.864	3.736	4.563	5.333	6.036	6.669
	250%	0.003	0.246	0.885	1.711	2.596	3.480	4.329	5.123	5.853	6.511
	275%	0.001	0.160	0.709	1.491	2.364	3.254	4.118	4.933	5.685	6.366
	300%	0.000	0.104	0.572	1.307	2.162	3.052	3.927	4.759	5.531	6.232

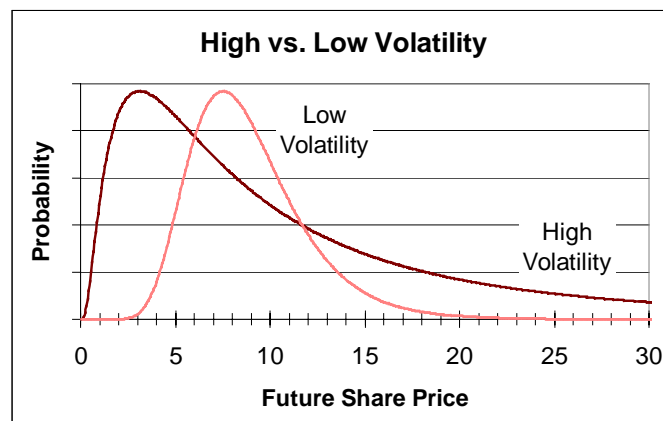
With low volatility, the option value drops away rapidly as the exercise price increases. But with high volatility, the option value holds quite high even at very high exercise prices. Indeed with a share price of EUR10, a volatility of 100% and an exercise price of EUR30, or 3 times the current price, the option is still worth EUR6.23, or 62.3% of the share price. And this is with a time frame of five years, which is long for a financial option but short for the real options faced by internet companies. Some samples of volatility are shown:

Examples of Volatility (3 YR daily share price changes)

General Electric 29.2%	AOL 65.3%
IBM 37.1%	Yahoo! 83.3%
Cisco 46.4%	Amazon.com 100.7%

Volatility drives option value

So an option to buy Amazon.com at three times the current share price over the next five years would be worth nearly 11 times (6.232/.572, see highlights in table) that of a similar option to buy General Electric. This, again, is due to the importance of the long tail to the right on highly volatile shares.



To recap, a financial option gives the holder the right, but not the obligation to purchase a share for a specified price over a specified time. It can be worth substantially more than we might think due to the long tail to the right of possible stock price performance. The greater the volatility and uncertainty, the more valuable the option becomes. But the benefit of this valuation approach extends far beyond mere financial options. Every operating decision a company faces imparts options to the company which can be quite valuable, particularly in



times of great uncertainty. To understand internet valuation, we must understand the value of real options.

Real Options

Real options are everywhere

Companies of all types are faced with real options every day. A petroleum company might purchase the right to drill and produce oil on a particular site for the next ten years. At current prices, it may not be economically desirable. But the fact that they have the right, but not the obligation, to drill and produce oil creates an option premium that exceeds the apparent current value.

Employees provide option value in start-ups

In start-up companies where much of the potential income of the human capital is in the form of stock options, the cost of the human capital essentially works with optionality. If the company does well, the human capital reaps large rewards but if it doesn't do well, they get nothing. The fact that the providers of human capital absorb some of the downside potential provides a source of option value to the shareholders. To assess the impact of this on the founders, we must distinguish their 'remuneration' stake from their 'investment' ownership.

The internet is about options

The future of the internet provides more options than ever before. If a company is positioned with substantial content and a large subscriber base, they stand to make significant gains when bandwidth to the household increases. Advanced telecommunications, video telephones, movies-on-demand, work-from-home capabilities and a whole host of other potential future developments become possible. When this happens, there will be investments in infrastructure to handle the throughput, but these investments will only be made when the technology makes them valuable.

Companies such as AOL and Yahoo are positioning themselves to take advantage of the increased future potential by establishing the right, not the obligation, to invest in these areas. Significant option value results. Of course, every company in every industry has such strategic options and this adds value to their shares. But as we saw above with financial options, the value of out-of-the-money options (those you cannot yet exercise for any proceeds) are much more valuable when volatility and uncertainty are high.

Which options are most valuable?

If we go back to thinking of the entire extended sector as one valuation problem, we can picture a portfolio of options that are available. The collective value of these options, when combined with the value of current activities, should be the total sum value of all companies in the extended sector. The judgement managers need to make is which options are most valuable. To do this, we have to look at the drivers of value.

Online banking...

Let's consider a simple example of a single real option. In the banking and brokerage business there is a strong move toward online transactions but the reality in the UK is that only a few percent of the populace have signed up for this service. And even these people still mix online banking with telephone and face-to-face banking. The investments the banks are making in this field may or may not be earning an adequate return right now, but the banks have purchased an option to participate in this new customer interface.

Will it ever be the case that the vast majority of all banking, both commercial and private, will take place over the network? We do not know. There are technological and cultural barriers to rapid acceptance. Most people do not have computers at home and they are being discouraged from 'surfing' the internet for personal use at work. However, it may be that the marginal cost reduction, fixed asset reduction, improved consistency of service and overall convenience will draw people in quite rapidly.

...could be worth hundreds of billions

If the transition does occur, it could be worth hundreds of billions in value, some of which will be transferred to consumers and the banks will retain some. If it passes by with little acceptance, it's worth nothing, but the companies will also have avoided the larger investments in infrastructure. Let's look at our drivers of option value:



1. **Current Share Price:** In real option terms, this is the net present value of the eventual investment if it were made today. In the example, this would be fairly high as the potential market transformation is so large and the marginal costs per transaction approach zero. This increases the value of the option.
2. **The Exercise Price:** Once positioned as an internet banking provider, the marginal investment required if the market takes off is quite modest by historical standards in banking. In fact, substantial cash would be set free when branches are closed down and sold. This relatively low cash investment to increase the scale of the activity implies a low exercise price, which increases the value of the option.
3. **Risk Free Rate:** Interest rates are at an historical low in recent years, increasing the value of the option.
4. **Dividend Yield:** Irrelevant since the banks are turning cash back into these operations rather than stripping cash out. This increases the value of the option.
5. **Period of Exercise:** This is very long since as long as a financial institution makes the modest investments needed to stay up with technology developments the option remains open forever. This increases the value of the option.
6. **Volatility:** The extreme uncertainty about the future which ranges from low conversion to complete transformation introduces a volatility in potential outcomes that drives the value of the option yet higher.

Every factor seems to point in the direction of high option valuation and this is just one sector where the value of the internet can be observed. Will it happen in banking? Nobody knows, but many firmly believe it will take over some sectors even if we are not quite sure which ones yet. Online banking seems to be an option that all traditional banks should buy.

Nobody knows!

Nobody knows when, how or whether all of the challenges facing the 'online utopia' will be solved. These barriers include physical limits on chip power, with many forecasting that in 2014 we will reach the natural limits of chip design. What will be next? Will we ever get truly ubiquitous broadband transmission to the home? What about cultural resistance?

Many point out that the majority of internet users are young professionals with the interest, resources and computer literacy to enjoy the fruits of the web. Will it ever get far beyond this? The advocates say yes and they point out groundbreaking moves such as when the Ford Motor Company recently announced that eligible employees would be provided with a computer, printer and internet usage service for a fee of \$5 per month. Ford wants to be on the leading edge of e-business in their sector and this will help accelerate the skill development of their staff. It also opens up a whole range of other possibilities for companies looking to reach this vast group of employees. And other companies will follow.

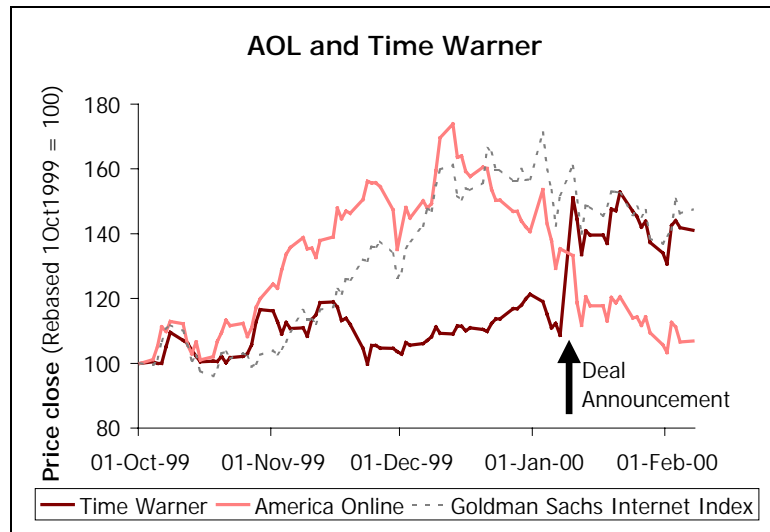
In our real option discussion, this move by Ford increases the value of the option held by the banks that are getting online. Every day, shifts in technology, access and acceptance are occurring and many options increase in value. Of course, with the wide range of options in existence, some decline in value. How many of the real internet options will expire worthless? We do not know.

The AOL/Time Warner Merger

Rocked the world

On Monday January 10, 2000, in the second week of the new millennium, the online world was rocked by the announcement that America Online and Time Warner would merge. The marriage of the 'access' leader and one of the largest stockpiles of content would revolutionise the web. And Time Warner brings a vast cable network as well. It was the first major deal where internet paper would be used to buy hard assets and the business world was buzzing.

Is it the revolution the media makes it out to be and did this create value for shareholders?



Time Warner up

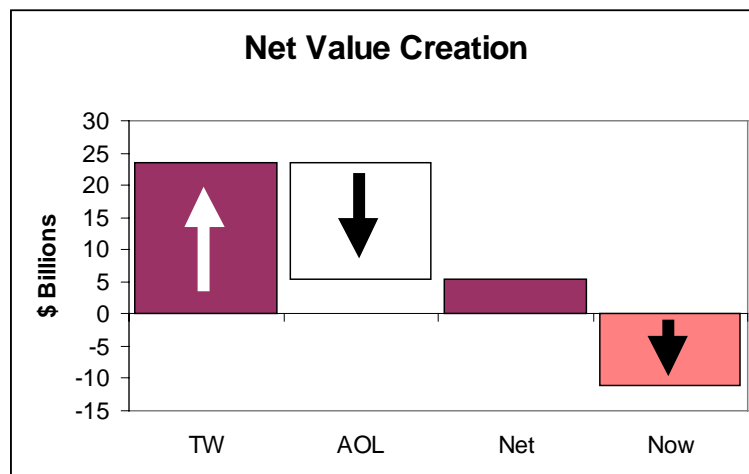
For Time Warner shareholders it seems remarkable. At the close of business the previous Friday, Time Warner closed at \$64.75 and they jumped to just over \$90 on the day of the announcement. For the week, the closing prices averaged \$84.61, about where the price is now. This is a 31 percent return, which is very nice considering the deal had not been accepted yet. With 1.18 billion shares, this is a value increase of \$23.4 billion. Not bad for a few days work.

AOL down

AOL shareholders are not quite as cheerful. On the Friday before the announcement AOL closed at \$73 and the average closing price for the week of the announcement was \$64.93, a loss of 11 percent. The price has dropped a further 11 percent since then to \$57.63. If we just focus on the week of the announcement, with 2.24 billion shares outstanding, this is a loss of wealth totalling \$18 billion. Like many other acquisition results, it seems this deal creates some value but not nearly enough to cover the merger premium so the buying shareholders lose.

The combined value of the businesses rose from about \$240 billion to just over \$245 billion, an increase of about 2 percent. Not exactly revolutionary value creation. And at current share prices, the combined value is about \$228 billion, down nearly 5 percent.

Net impact insignificant



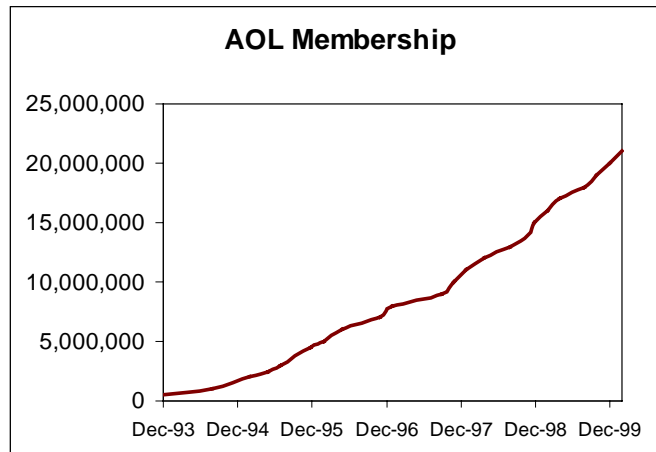
For this to have been a neutral investment for AOL shareholders, the AOL share price would have had to hold where it was at \$73. With an exchange ratio of 1.5 to 1, this would have valued Time Warner at \$109.50 per share. Time Warner is now about 23% below this level so the decline in value versus the announced value of the deal on 10 January is about the same as for AOL.



Other than the sheer size of the bid, what caused it to be considered so revolutionary? How come the market prices do not seem to show much value creation?

AOL impressive

With over 22 million members, AOL is the leading brand name in the internet access market. The emphasis has always been on content and proprietary services generate 47 percent of usage, versus only 14 percent for direct internet access. When service quality lagged a few years ago, cynics claimed it was the end of AOL. As internet surfing has become more user friendly, critics claimed there was no longer a need for AOL. Through all of this turmoil, AOL membership kept steadily growing.



AOL has several deals to increase delivery bandwidth through telephone lines and on DirecTV, a digital satellite service. The Time Warner deal brings AOL 13 million cable subscribers. In addition, Time Warner brings one of the deepest libraries of movies, print and other media in the world. The strategic case seems strong.

Time Warner impressive

Time Warner is a true media treasure chest with tremendous patronage. The entertainment segment consists of interests in filmed entertainment, television production, television broadcasting, recorded music and music publishing. The publishing segment consists of interests in magazine publishing, book publishing and direct marketing. With 13 million cable subscribers, 35 million HBO premium channel subscribers and 28 million publishing division subscribers, the scope is far-reaching. And CNN is everywhere. The problem is that with two failed attempts at interactive television behind them, Time Warner were just not sure how to get the most out of the abundance of content in the e-world.

The merger of these two great companies represents the biggest example so far of the convergence many technology forecasters have been speaking of for years. We have access, content and connection all in one company.

Have they forfeited other opportunities?

It seems a match made in heaven until we ask one simple question. Did they have to merge to realise these benefits? AOL had already struck deals for broadband access with others; why not just strike a deal with Time Warner's cable company? And what is wrong with arms length rentals of the media treasure chest? Do you want to show one of our myriad of movies through AOL? Fine, pay us a fee just like the television networks do. Does anyone fear cross-subsidies in this new conglomerate?

Will competitors of the cable network shy away from AOL Time Warner and do deals with Yahoo or others? Will other portals shy away from the content at Time Warner and run to partners that are not tied to their own competitors? **Have both companies forfeited opportunities that had substantial option value?**

Will culture merge?

Oh, and what about culture? As Richard Waters wrote in the *Financial Times* on 11 January, "Other attempts to mix internet and traditional media assets in this way have conspicuously



failed.” We are witnessing the merger of a stable old media company owning assets we can touch with the icon of the increasingly networked society we now live in.

The premium for real assets

The acceptance of the merger by Time Warner is a powerful statement that the old world accepts that there is real value in the new world. This is the first step toward the end of the term ‘paper money’. But to make the deal happen, AOL had to agree to an exchange ratio that delivered a 71 percent premium at the time of the announcement. This is quite high by large deal standards and may in itself indicate paper money is not quite real yet.

It will be exciting to see this one through as it is sure to drive the near term trends in the extended sector.

Europe’s New Economy

Many say that Europe is two to three years behind the U.S. in internet adoption but the gap is closing. There are exceptions as many Nordic countries embrace the internet, but most of Western Europe lags behind:

<u>Country</u>	<u>Internet Access*</u>	<u>Online Sales**</u>
Sweden	48%	\$86.00
Britain	23%	\$26.00
Germany	15%	\$16.30
France	10%	\$9.20
Italy	8%	\$5.40
U.S.	43%	\$112.00

* percent of population
** per person in US\$
Source: Forrester Research, Inc.

Some think the lag is due to a difference in culture. The web, more than anything, breaks down hierarchies and puts power in the hands of the individual. European culture is based on collectivism to a greater degree than the U.S., and it is hard for individualism to garner as much support.

From hierarchies to networks

As Lord Kenneth Baker said at our inaugural European EVA Institute Conference last September, “So the day of the club and of the old school tie, and of the group of cronies, and of the corporate bureaucracy, in my view, is over. Power has been dispersed from the old established organisations to the networks. The networks are the new power bases. And I say this in a country, France, where those of you who do business will know that the old boy network of *le grand école* still has some influence. But I think *le grand école* is going to be undermined by the Internet. The students of *le grand école*, with their little booklets on their desks filled with the names of all their friends who are running the rest of France, so they can ring up and do deals—their day, in my view, is coming to an end.”

The resistance is strong...

There is an enormous power base trying to fight the network trend. The resistance is enhanced by a regulatory environment where many fear Europe will over-regulate the web, numbing innovation to the benefit of their rivals in the U.S. Politicians find themselves limited in their ability to protect the populace from criminal practices, so they consider draconian regulation. More and more they also fear the loss of tax revenue as retail sales move to cyberspace. On downloadable product, such as software, there already are difficulties tracking sales. Once this evolves to include music, films and the like, a larger increment of tax revenue will be lost. The recent expansion of UK ‘betting shop’ operators into off-shore call centres to avoid government taxes, could eventually mean complete loss of revenue if online betting takes over. The reaction to this could stifle local innovation as the web is truly global and those in other jurisdictions will have a competitive advantage.

...but progress prevails

But despite this, there are many companies embracing the new world and achieving substantial success and market value. For example, **Brokat Informationssysteme** in Germany



develops and sells secure transaction software and, though only six years old, the company is one of Germany's fastest growers. The software product, Twister, offers banks and brokerage houses a completely new distribution channel. Among their customers are Deutsche Bank, Allianz and others. With Twister, these leading financial institutions can offer transactions on the internet, through interactive television and via telephone.

Brokat's IPO was on 17 September 1998 and the shares closed that day at EUR16.40. They peaked at just over EUR350, but today they are about EUR137 and the market capitalisation of the business is about EUR3.3 billion. Not too bad for a company with revenue just over EUR31 million for the period ending June 1999.

In the world of 'access', **Freeserve** in the UK has revolutionised the business. Just 10 months into operation, Freeserve has captured a startling 28 percent of the British internet market with its revolutionary free service. The company has pushed AOL and others aside but the continued success of the business depends on an increasing number of internet converts in Europe where only 34 million use the internet today. But Freeserve is feeding this as the free access offering helps promote usage where high local telecommunications costs have served to dampen adoption in the past. Freeserve listed in July 1999, and already the market capitalisation exceeds £7 billion.

Also hailing from the UK, **QXL** is a pan-European online-auction company where users bid in their own currency against others around the continent. QXL is the first to provide a multi-language site with automatic currency and tax conversions. Consumers can buy and sell from one another, as well as from businesses. This is a major breakthrough in adapting web technology to address local language, currency and cultural differences, with significant global applications far beyond Europe. QXL has built a market capitalisation of about £1.6 billion.

In Italy, internet usage has been quite low as very few people have much interest in personal computers. Renato Soru put about \$600,000 behind his belief that Italians would gain interest in the internet and this will drive computer sales. His company, **Tiscali**, was the first to introduce free internet access in Italy, back in November 1998. He forced entrenched competitors to drop their prices as well, which led to a threefold increase in the number of internet users last year. Tiscali now holds 30 percent of the market and is aiming at the continent with an integrated range of phone, data and mobile services. The market capitalisation of Tiscali has leaped to E14 billion.

These are but a few examples of what scores of companies across Europe are doing. Although Europe is starting from a lower base, the internet fever is spreading like wildfire. It is a virtuous cycle as an enlarging user group draws more internet development, which draws more users, etc. Coupled with the ease of competition from across the Atlantic, this poses a new and major threat to old world companies in Europe. Every company needs a strategy for invoking the internet.

Implications for Strategy

Despite all the hype, much of the strategic thinking behind success in the new economy mirrors the factors of success in the old economy. That is, value is created when we deliver a product or service that is desired by customers and distinguished from competitors so that the price of the product or service is well above the total cost, including the cost of capital, for delivery.

Why, then, is Amazon.com worth \$26 billion while Barnes & Noble are worth \$1.4 billion? What are the strategy implications for an old world company that is trying to survive in the new e-world?

Oddly, the biggest change is time. The new economy simultaneously shrinks and lengthens time horizons. Technology shrinks time due to the rapid rate of development. We need to constantly adapt our service offering to new media, new platforms and new access. The

Europe has caught the internet fever

Value is value

Time shrinks and lengthens



benefits come from the network and the interconnection we all now have. Combining this with the ever increasing speed with which we can transmit immense quantities of bits and bytes gives a linked interface we have never before experienced.

Strategic Thought #1: Whether old or new, rapidly take full advantage of the web.

Every business benefits from connectivity

This sounds straightforward but many old economy management teams view their business as being separate or insulated from new technology. “Sure there are internet companies that compete with traditional retailers, but I make windows so what does it mean for me? It’s just a waste of money!” It is easy to fall into this trap but the web is not really about retail, though this is perhaps the most advanced, it is about connectivity. Every business will benefit from better connectivity whether it links to customers, suppliers, employees, whatever. Each company should use this advance to create new value and develop a competitive advantage.

Just plain action

And it is not enough to have a web site. As *The Economist* wrote on 26 June 1999, these are often “stodgily designed billboards, known in the business as ‘brochure-ware’, which do little more than provide customers and suppliers with fairly basic information about the company and its products.” This is not really using the web, there needs to be interaction, transaction and just plain action.

The new economy also lengthens time frames in that investors are satisfied to wait for results as never before. This is one of the biggest obstacles for large companies in that their time horizon and excessive focus on quarterly or yearly earnings objectives makes it hard for them to be as patient as they should be. We believe this is not a City or Wall Street problem but a management fixation.

Strategic Thought #2: Be more patient with internet investments.

Focus on long term EVA

If you are pursuing the right strategy and getting the right results, even if this means sacrificing near-term earnings, investors will understand. In fact, investors will likely compliment you.

In this process, we must avoid the temptation to say that companies that cannot produce accounting earnings have no profits. Use a better system of measurement where investments in soft assets are treated on a level playing field with investments in hard assets, and all investments are required to generate a return over time.

Strategic Thought #3: Ignore accounting statements, treat research, development, selling and marketing costs as investments and measure business performance with EVA.

Experimentation is essential

The antiquated system of accounting that is prevalent in all countries discourages managers from making the right internet decisions. Just say no!

Silicon Valley in California, and all the regions of the world that operate the same way, has evolved into a perfect technology greenhouse. It is a Development Director’s dream with small sums of money directed without bureaucracy toward lean organisations with energised teams and great ideas. There is a tremendous ability to fund ideas, wait for them to mature and shut them down if they fail. Although most of the investments fail, the winners can be blockbusters.

In too many old world companies this mechanism just would not work. The corporate staff analysts would develop statistics on how the majority of investments fail and the CEO would use this analysis to attack and berate the business manager. These business managers learn



pretty quickly in most companies that minimising failures is a lot more important than maximising successes. And thus, the innovation potential of most old world companies, particularly those that are large, is stifled.

Strategic Thought #4: Experiment and accept failure as integral to the learning process.

Tolerate failure

Even outside Silicon Valley, Americans tend to be more tolerant of failure than Europeans. This is essential. If we knew in advance which internet investments would fail we would not make those investments. But we do not know so we have to invest in a portfolio. As long as the successes earn an adequate return on the portfolio of investment, we are successful. And do not just tolerate failure but ensure a disciplined learning process.

Through experimentation, some of the best ideas for products and services are dramatic shifts in focus for the originating company.

Strategic Thought #5: Think outside the box about ways the interconnected world can help you deliver your product or service more efficiently, or make your offering more valuable and differentiated from competitors.

Consider the whole value chain

Don't just think about selling through the web; consider the greater value chain. Can you increase customer awareness, increase accuracy of orders through direct access, co-ordinate better with suppliers to avoid excessive inventory stocks, gather useful product development information or allow more customised product design? Look at what others are doing in unrelated sectors and brainstorm ways of applying their techniques. Think about how to make your business more effective for your suppliers and customers, and you will be the preferred business partner.

Small investments in options

However, avoid over-investment in advance of commercial possibilities. The focus should be on making many small investments that create the ability to seize opportunities when they arise without being tied to technologies and activities that may not prevail. Remember, option value is created when we have the right, but not the obligation, to invest. Do not commit too early.

Strategic Thought #6: Invest in real options and position your company to have as many valuable opportunities for the future as possible.

In essence, we can say that option value comes from the flexibility we develop. This can be in the form of flexibility to invest or dis-invest when the time is right. None of us have a crystal ball so we have to do our best to position ourselves to win across a range of possible future scenarios.

Pay people like owners

Of course, the people we have managing our internet activities will make or break our success. The tendency of large companies to be bogged down in bureaucracy will assure success is not achieved. Too often managers are more concerned with looking good in the near term than they are with performing well. We have to make sure the interests of these managers are closely aligned with the performance we want them to generate. The competition is behaving like it's the Wild West and we do not want our managers caught up in 'process'.

Strategic Thought #7: Recognise the value of human capital and allow the true stars to participate in the success of the organisation.



This can be accomplished through equity participation, or stock options, in the internet business being run but this will only work if the intention is to float the internet activity separately. Often, in the formative stages of development, when incentives are most important, it is far better to tie the rewards of management to an aggressive EVA bonus plan that encourages multi-year continuous improvement in performance such as that shown for RealNetworks, Inc. above. Europeans are less accustomed to this reward architecture than Americans, but the key human resources will leave for the ever-growing number of internet start-ups if they feel they will not be rewarded in their current positions.

Get out and do it!

Do not be distracted by the values of new economy companies. The share prices may be realistic or they may be a dream, we do not know. However, we do know that if we look at RealNetworks, Inc., their share price at the end of the 1998 financial year could fall by 90 percent and they would still be worth twice the capital invested. This would be an NPV to capital ratio that many old world companies would cherish having. Given such high values, get out and do it.

Strategic Thought #8: Stop thinking about survival and take an offensive position.

Although the old world companies tend to have more assets, more staff and more history, they are considered the underdog in this new world. Everybody loves it when an underdog wins, but this will only happen if the old world companies believe they can win and they lead the way.

Understanding value is critical to success

In mid-1929, Professor Irving Fisher, a noted economist in his day, forecasted that share prices had reached a permanently high plateau. Over the next few years the Dow Jones average dropped about 85 percent. Right now we do not know if we are in the same situation. Are the current valuations a bubble? Maybe so or maybe not. However, we do know the changes we can expect are significant and companies that ignore them might as well be producing buggy whips. **Every chief executive must steer his or her company into this great unknown and understanding the drivers of value in this sector is critical to success.**

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