

Richard Pzena Presentation

Joel Greenblatt (“JG”): I did notice Columbia ranked 4th as a Graduate business school. But I did notice that Columbia was not mentioned in the ethics section.

Introduction:

Richard has been a very good friend of mine for the past twenty five years. He manages \$20 billion world-wide. He started his firm in 1996. Richard Pzena (“RP”) was head of Equity Research at Sanford Bernstein.

The Spectrum of Value Investing

RP: I want to focus on the spectrum of value investing. We are in a unique period right now. We go through different cycles in the market. There are different times when flexibility of what it means to be a value investor makes some sense. Hence you might be surprised that we would talk about *Microsoft* as a stock that I, as a value investor, might consider owning.

But the purpose of what I would like to accomplish is really to talk about the spectrum of value investing. Why it works from a practical standpoint not from a theoretical standpoint. If you have read *Prof. Greenblatt’s* books, especially his second book, The Little Book That Beats the Market, where it is very simple—all you have to do is pay a low price for good companies. We will talk about how we recognize those companies.

How you recognize a good company not just from the numbers but from the characteristics of the business. And how do you recognize a low price? That is what I wish to accomplish. I will try to put some perspective on today’s environment as well. If you look at a broad spectrum of value investing, you have extremes of what people call value investing.

On the one hand you have a Warren E. Buffett (“WEB”) kind of investor—who is looking for solid franchises that are growing and will give a good total return on invested capital. You have the other extreme, let’s just call it quant. The investor going to buy something that is statistically cheap, I don’t care what it is just so long as it has a low P/E. Low price to something like sales, earnings, cash flow, EBITDA. There are all kinds of academic studies that show that this stuff works. Very simple: buy low price to book and hold for a very long time. You out perform the market. We will talk about why that happens a little later. Those are pretty different strategies. This is a strategy of knowing what you are buying, buying it at an attractive price and making a judgment.

This is a strategy (quant) of not making a judgment. This is easy.

What we try to do in this spectrum is find great franchises at statistically cheap prices. Unfortunately, they don’t overlap very often. Typically, they only overlap when there is some question as to whether they really are good businesses. Usually when there is something wrong. The patterns that these companies evidence over time. You have a company whose earnings are chugging along doing just fine and then you have a break and earnings fall. The stock market can react negatively, sometimes precipitously. But the problems may not be permanent problems.

Identifying these companies is easy but making a judgment (are they really good businesses and temporary not permanent) is difficult. Are they really good businesses and are the problems really

temporary. And should the earnings rebound to that historic trend line? That's the hard part, but if you want to get the best of both worlds, pretty much the only opportunity you have to do this is when something ugly happens. So that is what I like to do.

I like to do it because you have two ways to win in your investment. One is this—if you buy something at a low price, and you can debate whether book value is meaningful, earnings or cash flow or sales—but you buy low price relative to its size or earnings capability is, you win in the long run. You have opportunity to have exposure to that.

You also have exposure to earnings growth, which can be really rapid if the company succeeds at restoring its earnings power back to its historic metrics. And you avoid buying companies that have that pattern—no break but a low apparent P/E (valuation) but earnings are above historical norms. There is enough compelling evidence to suggest that historical trends are meaningful. And I will share some of that data with you. This is fairly dangerous to buy companies when they look good.

If you can pull this off—to get that kind of franchise at that kind of price when its earnings are depressed and they then recover, that is a recipe for making a lot of money. So that is the framework from which I approach value investing.

RISK

Let's talk about risk. How is it that buying low price to book value—what the academic studies say which is taking the cheapest deciles of price to book value—and holding it for a year and selling it. How could that strategy consistently outperform the broader market especially if you have a longer time horizon? It outperforms 55% or 58% of every year; it outperforms 75% of every three-year period. 95% of every five-year period and 99% of every ten-year horizon.

Why is it that something that is so obvious and has been published in many places like books, papers and yet it keeps working. Why? Many people are not paying attention to this. Forget about the reality, let's look at the logic of it. Why wouldn't people do this? Why wouldn't they do it?

Student: When you look at companies in those deciles, people laugh you out of the room.

RP: Exactly. Exactly. What would be on the top of the list today—*General Motors (GM)*? I won't invest in *GM* because it will go bankrupt. **I think that is the answer.** Make a list of the ten cheapest stocks to book going back several years and see what happens. History suggests that is a strategy that works.

Regression the Mean

When you look at the behavior of corporate earnings. This is what you find: Convergence Chart. High ROEs (Return on Equity) over time decline from highs to lows while low ROE companies rise from lows to highs. Convergence around a mean. Take five groups of high to low ROEs of companies from the S&P 500. Track what happens to the returns to that group of companies over the next five years and what do you find? Why?

The companies who have the highest returns invest in more marginal projects so their ROE gradually decline. While the companies that are earning 0 returns, management works to turn around the business. Management closes plants, cut costs, change products, raise prices and it tries

to improve. On average they do succeed at improving their business. So the strategy of just buying great businesses (high ROEs) is tough. Here in the low ROE companies you can win while being mediocre. I like playing there. Why would you try to assume that you will be better than everybody else? Why would you assume that you can choose those great businesses that will stay great—their ROEs will not revert to the mean or at least take much longer than the market expects. The low ROEs do incrementally better than the high ROE companies. It works because no one believes it will happen this time. This time is different.

This type of deep value investing has a cyclical nature to it. So when you study the cycles of value investing, what you find is that there is a high correlation of this type of investing and the economic cycle. Typically during a recession and the early stages of an economic recovery, this is a great strategy because this is when you are getting all types of opportunities.

It doesn't have to be economic it can be any type of distress and economic stress. But broadly speaking when you are trying to measure it, in periods of recession there are tons and tons of value opportunities normally. People don't want to own cyclical companies during the recession when that is exactly when you want to own them. And they perform well during the recession. You don't want to own cyclicals before the recession.

You want to time the purchases at the start of a recession that way you will optimize the valuation. Then what happens as the economic cycle goes and you look at value investing relative performance in all these stages of the economic cycle, you get great relative performance.

Investors usually get excited about the stocks value investors are not buying. So that translates into P/E expansion and generally the growth stock people who invest. So if you look at history and you look at the end of the last cycle prior to this, there was the most euphoric situation in the last 100 years during which the Internet, technology and telecommunication stocks were going to the moon, because people were suspending economic disbelief and normal rules and riding the wave.

Now we see a similar cycle in energy, commodities and industrial cyclicals. Instead of their being a belief.....the pendulum swings in investor mentality is almost unbelievable. Six years ago if you had sat here and said you wanted to own a business which had physical assets you would have been laughed out of the room. This is what you wanted off of your balance sheet and you wanted some networking effect that was going to get some big valuation. Then it went all the way to the other direction to the point where the same people in the market conclude that strong demand from China and Asia will lead the world to a permanent shortage of industrial goods which is equally ludicrous. Yet that is what people were buying and what they were believing.

We will get into the discussion of a good business in a little while....but very few of those businesses.....It would be difficult to say the steel business is a good business or the gas business is a good business. This late economic cycle as all of this was going on and all the classic places value investors would look for value are not there. Because the world has gone crazy like oil companies earnings will stay strong longer. This leads to Microsoft.

It's Different Now

Whenever you hear the words, "It is different now," you should hold onto your wallet because it is not. The idea of supply and demand not existing anymore.....there were books six years ago that said that the lower the price of a good the more valuable it is. The authors spoke of an infinite

supply at a price of zero (\$0); you will have the highest valuation. These were legitimate books that were being written and read. Now they say there will be a permanent shortage of energy in the world and it will lead to high margins for oil companies.

Even if there is a permanent shortage of oil how will that lead to sustained high margins for oil companies, because they are trying to find the oil that doesn't exist. People forgot about all that and about what these companies do. What these companies have are finding costs. If you have \$5 finding costs, then you don't get \$70 per barrel prices. Simple. No one wants to think. People want to ride these waves. So in the process they sort of abandon the WEB stocks. We have a WEB market today. It is an interesting environment today. You have that kind of market.

Great stocks are relatively cheap.

This is the framework of value investing that I am coming from. You have to understand what it is that you are buying, and you have to recognize that sometimes when you want to buy stat cheap companies, they may not exist or they may be more pricey than you are used to paying—pay up because you are getting some story that will probably come back to haunt you. When there isn't so cheap stuff, maybe I should buy high quality businesses. And so I think the best kind of value investors apply a little bit of common sense to the thought process about what type of company they are buying.

Are there any questions before how you decide what is a good company?

Student: This is a Warren Buffett environment.

I don't think WEB companies get very cheap. He didn't buy companies at discounted prices. He did it by looking at whether it is a sustainable franchise and a high sustainable ROIC. Does it grow such that if you finance it with a reasonable cost of capital you will wind up with a good return? This is a somewhat different approach from saying I want to buy something that sells for less than its book value. If you pay a high price what should you buy? You want high and sustainable cash flows. It is a different game to out predict the market on the sustainability of cash flows.

Characteristics of Good Businesses

I want to talk about what are the characteristics of a good business. What do I want?

Good Business	Bad Business
High Barriers to Entry	Obsolete technology - newspapers
Brand Name	Money loser
High ROIC	No strategic vision
High FCF	Legacy costs – high cost producer
Loyal Customers	A commodity product.
Growth opportunity	Poor corporate governance
Responsible Management Team	Heavy regulation
Pricing Power	Prone to litigation
Strong Balance Sheet	Low B-t-E
Low Capex Req. with other B-t-E	

High Capex-B-t-E	
Commodity Inputs-suppliers have low power	

High B-t-E in energy (oil) industry: High Capex. On average, ROCs were poor. History is against you.

There is seemingly B-t-E but they have not created a long term high return on capital. No brands. Franchise value-perhaps a little to the brand of gasoline you buy but not much.

Growth opportunity- Yes, we are consuming more energy today. Very few growth investors would look at energy.

Responsible management? Probably.

Pricing power? No.

Strong balance sheets- they probably have strong BS today after high oil prices.

The oil business does not have many of the characteristics of a good business. Strategic vision? They are interested in where they will drill their next well.

You get the point—

Fortune did a study from 1950 of the best businesses and several oil companies were on the list. Like *Exxon*. Branded consumer companies, tobacco and?

Returns on deployed capital is in the single digits.

Oil prices in the 1950 and 60s were very low \$3 a barrel. So oil companies were at very low valuations. So there was some balance sheet appreciation when looking at stock market returns over the past few years. A lot of the older oil companies had huge resource bases and they had asset revaluation upward.

I do know that the overall returns on invested capital in the oil industry are in the mid-single digits.

Exxon was one of the few oil companies with higher returns above normal.

Steel Industry: No B-t-E except building steel plants. People over construct. Political aspects to it. For most commodity-like businesses, they earn low returns on capital.

If Exxon says to me that their business strategy is to use all their reserves, then it would be a huge homerun. Exxon's strategy is to replace all its reserves by spending money. Prior to this energy bust. All the signs of a bust were there. You had every oil company in a world of \$70 oil with negative free cash flow. Every storage facility in the world full with oil. You couldn't buy oil and store it if you wanted to. High prices and demand was falling. Supply was growing faster than demand for oil the past few months for the first time in years.

Someone who bought oil reserves at \$4 a barrel and has sold them at \$70—yeah it is a good business. But for an oil company with an ongoing business, it is hard to maintain high returns. I will ask you to do the analysis. The best way to teach.

Microsoft continues to grow sales and profits at a double digit rate. Note long-term underperformance of the stock price—out of fashion.

FINANCIAL HIGHLIGHTS

(In millions, except per share data)

Fiscal Year Ended June 30	2006	2005	2004	2003	2002
Revenue	\$ 44,28	\$ 39,78	\$ 36,83	\$ 32,18	\$ 28,36
Operating income	16,47	14,56	9,034	9,545	8,272
Net income	12,59	12,25	8,168	7,531	5,355
Diluted earnings per share	\$ 1.20	\$ 1.12	\$ 0.75	\$ 0.69	\$ 0.48
Cash dividends declared per share	\$ 0.35	\$ 3.40	\$ 0.16	\$ 0.08	\$ —
Cash and short-term investments	34,16	37,75	60,59	49,04	38,65
Total assets	69,59	70,81	94,36	81,73	69,91
Long-term obligations	7,051	5,823	4,574	2,846	2,722
Stockholders' equity	40,10	48,11	74,82	64,91	54,84

MSFT: A GOOD BUSINESS?

Is *Microsoft* a good business? It has very few competitors—like none—which is usually a good sign. It gushes free cash flow. It has low incremental capex requirements for incremental business. It has high switching costs because the customers are locked in by habit and learning. Customers are stuck with its operating system.

MSFT's core business has impressive profitability. They are managing to grow, though growth rates have moderated quite a bit. But it is growing its top line in double digits which is pretty impressive with a company having \$50 billion in revenues. They are managing to grow and we will discuss forecasting that growth and how to think about that growth.

How you think about forecasting? A \$50 billion technology company--how can it grow as fast as it has in the past? Can it create \$10 billion worth of new sales each year? Probably not, but they are managing to grow.

They have basically a good product that works and they sell at a reasonable price and more and more people in the world who want to use it.

Student: I would argue the opposite: *MSFT*'s operating system has bugs and obsolescence. It clearly it doesn't have the acceptance and monopoly status of *Windows*. Xbox is unproven. There could be another paradigm shift to Linux.

Clearly *MSFT*'s *Xbox* product does not have the universal acceptance of *Windows*. Litigation and heavy handedness will weigh against *MSFT* due to monopoly power. Shift to online applications might hurt *MSFT*.

People mention the biggest threat to *MSFT* is *Google* which will offer an advertising based model with free content like applications for *MSFT*'s *Office Suite*. The question is whether that really is a legitimate threat.

Risk of Obsolescence for *MSFT*'s *Office Suite*?

I would argue the installed base of software that relies on Excel spreadsheets in the world probably most of which run successfully. Everyone would accept that Microsoft's *Windows* is not the best operating system—that does not seem to matter. The question is *Office Suite* has universal acceptance and connectivity to allow you to email a spread sheet or document to someone else and read it with 100% success. There will be marginal users who will not apply for *Office Suite*, but it will be negligible. *MSFT* has a formidable fortress in *Windows*. It would be very difficult for a competitor to get customers to switch out of *Windows/Office*. Lots of examples...

We asked *Computer Associates (CA)* customers if *IBM* offered *IBM* software for free would you switch? The customer said no. The logic being—who the hell cares about the software--we are operating a 24 hours data center so we won't switch software. The risk is too high. *CA* has a huge franchise there; it doesn't mean *CA*'s technology is better. Customers would not switch even if a competitor offered free software.

So *MSFT*'s franchise may not mean it has better technology but its franchise is solid. Whether the software is web-based versus local based is not all that relevant for *MSFT*'s model. The real question is what will replace *MSFT*'s core products? The whole world operates on one standard—*MSFT*'s *Office Suite* and *Windows*. *MSFT*'s management is spending money on Xbox and MSN in order to diversify and continue to grow.

To get the whole world to operate on a different standard will be very difficult when technology is firmly established. There will be a debate on this, of course, with no clear answer. Obviously, I am biased due to history. Change is harder to effect, so as a betting person, I would bet on continuation. *MSFT* has a wonderful franchise, great financial characteristics, and strong balance sheet, and it exposes a strategy.

Whether you choose to believe it, I accept this is a good business. There is a risk of obsolescence in any technology company or any company you invest in, but I do not think it is an issue now.

Is there huge opportunity in *MSFT* because management has not come to terms with the fact that they are no longer an innovative technology company? They are behaving like they are trying to be one, but if they accepted the fact you would have a much better outcome. Companies with \$50 billion in revenues mean that it is difficult for them to innovate enough new products to grow at a strong pace. All the most innovative people do not go to *Coca-Cola* or to *MSFT*. The best engineers in the world are not going to *MSFT*. The question is do you need them? Do *Word* and *Excel* get replaced? Will the world migrate to a different standard? Probably not due to the nature of humans. Think of learning to type.

MSFT is not innovative and the products are not great but good enough. A FRANCHISE. Odds against rapid adoption of new technology or standard. *MSFT* has a strategic vision with Xbox and MSN that says we want to control the world; we don't just want control of the desktop; we want to control the set-top box, the gaming device and handheld device. We want to control it all. They are not succeeding at it, but that is what they are trying to do. They would be making a lot more money if they recognized their limitations.

The odds that you have rapid adoption of strategic technology in a short period of time is very low. If *MSFT* adopts to a slower growth rate by returning more cash and not investing in order to grow as fast in the past, then shareholders would really benefit. Investors are worried about the slower growth but earnings are growing rapidly. The transition process for *MSFT* is to accept that they are not an innovative technology company that comes up with interesting things. Think of yourself as a great global franchise and not as a technology company. I think management is going through that educational process.

Again, the best software engineers in the world are not going to *MSFT*, but the questions is do you need them?

Forecast Model

Let's put together a forecast model. How do we go about forecasting *MSFT*'s Earnings?

Analyzing and Valuation *MSFT*

CLIENT SERVICES: *Windows*

Growth and price used to forecast revenues? Historical growth rate is 8%.

Demand: look at world wide PC Shipments with *Windows* operating system installed. Copies of *Office* go onto new PCs. Retrofitting (upgrading software between product cycles) is very low percentage of sales. Reducing the percentage of products lost to piracy is an unknown upside. Demand for PC will grow less than 8% (8% is the historical growth rate for PC shipments world-wide) but incremental growth of revenue will come from increased functionality. Professional Edition, for example, has more selections and thus a higher price.

The most pessimistic argument for growth: PC Demand grows slower due to longer PC replacement cycle. That is happening, but the question is whether it will lengthen further? There will be obsolescence of *Windows* due to Linux taking share of the Desktop market. Bad growth forecast: 0% to 1%. Great growth forecast: 8% to 9%. I will choose **5%** or World GDP growth.

So we have 8% growth. Growth in PCs world-wide is probably 4% to 5%. Incremental functionality in Professional Edition over Home Edition adds 3% to 4%. There is gradual migration to *Office Professional*.

Pessimistic argument: PC Growth is going to be slower than estimated. The replacement cycle is lengthening. Will it continue or increase? No sure. Can you make a case for software like Linux to obsolete *MSFT's Office*? Probably not anytime soon due to human habits. Most pessimistic scenario for PC Growth is 0% to 3%. Optimistic is 8% to 9% so let's take 5%.

Operating Margin is mid 70s%. No CGS. Flat or no change. Last three years 75%, 77% and 77% operating margins. This is definitely related to sales. If the sales are at the high end of 8% then margins will be

\$13.2 billion in 2005. Five year forecast where they grow 5% for 5 years and we use 77% operating margin. \$16.8 billion in pre-tax earnings. Tax it at 35% to give us approx. \$13.

Margins: flat at 75% to 77%. Margins are a function of growth rate due to high fixed costs, low to no variable costs. If you grow at close to 8% you will have margin expansion while growing at 1%, you will have margin contraction. At 5% growth we will keep margins flat.

FORECAST: In 2006 \$13.2 billion earned. 5% growth in revenues for five years at 77% margins = $\$16.8 \times 0.77 = \12.94 or **\$13 billion**.

4 Divisions	Client: <i>Windows for the Desktop</i>	Servers & Tools	<i>OFFICE</i>	"Wasted Stuff" Corporate Overhead Xbox, Zoom, MSN
Growth Rate	5%	10%	5%	
Margins	77%	45%	71%	
Revenues 2010	\$16.8	\$18.5	\$15	
Profits	\$12.94 or \$13	\$8.3	\$10.4	(6.2)
Net Oper. Profit				\$25.7
EPS five years out on 6.4 bil. OS				\$2.50
Expected Multiple 18-20 x				\$45 to \$50

SERVER BUSINESS

Server growth = 15% to 16% while profit margin growth 16% to 33%. Why is this business growing faster than Desktop? Because *MSFT* is gaining share on Sun/Linux/Unix. This is the

opposite of the Linux argument because *MSFT* is taking share from Linux where you would think Linux would be most competitive. Clients are using industry standard servers not proprietary servers because they work and they are cheap.

Forget the number, how would you think about the concept of forecasting?

They have a 20% market share, so the less room to grow so use the lower growth number. The low end server market twice the rate of the proprietary server market. Server growth driven by server farms which use Linux. You would have to look at industry standard server market or Linux. *MSFT* and Linux are gaining share. The market share losers are IBM, HP, Sun and those types of companies. Linux is gaining shares from HP. *MSFT* is going after the less sophisticated server market. We focus on strictly those servers.

One argument for lower: Consumers would be savvier so they would choose price and move away from *MSFT*'s servers.

15% is the company's growth forecast-and the margin structure will approach that of the desktop-75% to 77%. I could forecast the same growth rate and what has happened will keep happening for a few more years. I think of this as 15% growth with 60% margins instead of a 30% margin. Growth is coming from margins share gains from Sun Microsystems and UNIX. It is the opposite of the Linux argument. Here *MSFT* is gaining share. They use an Intel chip with a *MSFT* operating system.

So how do we forecast that?

How would you think about it? A more competitive space. Use a lower growth number. The low end server market is growing twice as fast as desk tops and *MSFT* is gaining share. Linux is gaining share. The share losers are Sun, IBM and HP.

There is one argument for lower growth and one for higher growth. The Company forecast 15%. What is happening will keep happening for a few more years. Let us apply 10% for growth which is a significant slowdown from where they have been. So we start at \$11.5 billion in sales to \$18.5 and the margin varies so forecast by sales and expense growth.

Growth forecast: I will take 10% growth which is a significant slowdown from where they have been recently in the server market. We start at \$11.5 billion in revenues with 10% growth for five years will take us to \$18.5 billion.

Margins looks like it varies to revenues. With growth there will be margin expansion from today (management estimates eventually 75% margins) to my guess of 45% margins.

Services grow 10% in five years = \$18.5 billion in revenues times 45% margins = \$8.3 billion

OFFICE

It is an \$11.7 billion business today and the growth rate has been 5% each year for the past two years. They haven't had a new release of *Office* for over three years. There will be a new release next year (2007) presumably that will stimulate some demand growth—it could be higher than recent growth rates but on the other hand competitive threats are greater with someone offering lower cost applications. However, will customers save a few hundred dollars to inconvenience their

business with a change-over? Most customers are buying a pre-packaged software suite. Assume no change in growth despite new product coming out in 2007.

Growth *Office* grows 5% for five years. \$11.7 in revenue for 2005 to \$15 billion in 2010.

Margins: Margins have been 71% 70% and 71% for the past three years so I will keep it there.

At 71% margin = \$10.4 billion in operating income.

“WASTED STUFF”

Today there is \$44 billion in revenues so \$8 billion is everything else like Xbox, MSN, etc.

Everything loses 6.2 billion a year. Two possibilities: either successful or unsuccessful. Xbox fails and a bigger loser is Microsoft TV. This enables the Bell Operating Companies to offer video over the telephone lines. They have lost \$1 billion. Gates is a smart guy, perhaps this is insurance against future threats.

Keep the losses the same. The 6.2 billion losses. \$5 billion for corporate expenses. Leave the five. To me, they are charging \$1.2 billion for R&D and putting no value on R&D is incredibly pessimistic. They keep spending this money for R&D and they NEVER recover it. That could be, but it is very pessimistic. Management is going to keep spending money but to say nothing will ever come of it is pessimistic.

In the drug industry, R&D is looked at as positive. The way I look at it is to put a \$0 value on the R&D. It breaks even. Keep the 6.2 billion in losses or at least grow the \$5 billion in corp. losses at inflation then taper off. Have the \$6.2 billion five years out.

Everything else loses \$6.2 billion per year. Eventually *MSFT* will stop investing or losing money in these money-losing divisions. Assume continued losses.

There are two possibilities with these divisions/investments/products—either successful or not. I will not consider success like Xbox becoming successful or a bigger loser like MSN TV (software that will allow Bell Operating Companies to offer video over the phone lines) starts to turn the corner—a big potential upside if it were to happen.

Perhaps *MSFT* will keep investing to counter or prepare for unknowable threats over the next five years. So keep investment rate the same. Corporate expenses are \$5 billion. Keep that and grow it with inflation.

\$32 billion in pre-tax operating profit minus \$6.2 = \$25.8 billion Corporate expenses of \$5 billion and assume \$1.2 billion in R&D = \$0 or break-even assumption. Grow \$5 billion in corporate expenses for five years with inflation so \$6.2 in expenses.

Net/net deduct \$6.2 billion in expenses five years out.

So what does that equal in operating income? \$25.7 billion in total.

How to value that cash stream?

From the balance sheet as of last June 2006 Quarter: \$34 billion net cash now.

We assume earnings are FCF with low to negligible capex. They have \$34 billion in cash on the BS as of end June 2006. We assume earnings are FCF. \$100 billion over five years. Last year they earned \$17 billion so the average over five years is \$20 billion so 5 years x \$20/yr. = \$100.

Five years out pre-tax \$100 billion in Cash for retained earnings. Deduct taxes of 35% so \$34 in cash + (\$100 x (1- 35% tax rate)) = \$99 billion but then add in interest accrued of 3.5% over five years = \$15, then add to \$99 for \$114 billion in cash roughly speaking.

\$27 share price now. Assume an average of \$32 price of the stock for buy backs over five years. \$32 is divided into \$114 billion in cash for buy backs = 3.56 billion or 3.6 billion (rounded up) bought back. We assume most of cash goes for buy back because that seems to be a commitment on the part of management from their recent tender offer. The stock is now at \$27.5 now so it is 12 times now. They have used 95% of their free cash flow to buy back stock over the past three years. So we assume all the FCF is used to buy back stock. 10 billion outstanding shares now minus 3.6 billion bought back = 6.4 billion outstanding in 2010.

\$25.8 operating profit in 2010 x tax rate of 35% = \$16 billion in Net Income then divide by outstanding shares five years out of 6.4 = \$2.50 in earnings per share five years out.

Multiple Assumptions

What are the range of potential outcomes?

Poor Case 12 x earnings = \$30

Moderate Case 15 x = \$37.50

Expected Case 18x - 20 x = \$45 to \$50 assuming multiple expansion is a big assumption?

Great Case 22 x = \$55

The next generation of *Windows* and *Xbox* is a low cost option. Market currently does not think much of *MSFT*'s ability to succeed with new products and upgrades. Trade at a 20 multiple puts it at \$50. Low risk and free option on their other businesses.

Never make greater than 15% growth projections especially for large companies—almost impossible to attain.

Here is my conclusion: Normally when I get excited it is at about half the valuation. But there just isn't any of that in the market today for a company of this quality. So 12 times earnings out five years would put this in the cheapest 20% of stocks. Relatively low risk: both low financial and operational risk.

I make, I believe, no outrageous assumptions. There is a fear of obsolescence. I think the fact this was a company that used to grow 25% a year and now grows at half that rate or less if you take my assumptions. Having said all this *MSFT* is forecasting 14% growth—growing from \$44 billion in sales to \$50 billion in 2007.

I look at this and say this is a nice franchise with great financial characteristics. I don't think the growth rates need to be very high. *MSFT* just has to demonstrate the next generation of *Windows*

and *Office* are a not a failure and some of those things will disappear. And you have the upside of Xbox, Zoom, MSN and other projects being successful. However, I believe, there is more upside with “non-failure” of *Windows* and *Office*. A low cost option to participate in something that might have good upside.

But this is not one of the cheapest stocks I have ever found.

If you did a five year on EBay with pretty conservative assumptions, you would get to a price that is attractive. How to you handle the business risk.

I prevent myself from making growth forecasts in excess of 15% a year. I don't think you can make *EBay* look attractive without making high growth rate assumptions.

So one of my protections is to say that if you really have to believe greater than 15% then skip it. You are in a different world, because the odds of a company the size of EBay continuing such growth are low by historical standards. It might appear that might happen.

I think that if you looked at a 10-year study that once a company achieved a billion dollars in revenue the ability of a company to sustain 15% sales growth a year is about 0. It is a long term bet. 5 years is an easier bet. But you are playing in a different world. There is just too much that can go wrong.

JG: *Rich*, I think what is interesting here, you may argue one way or the other, but you are looking at the assumptions of 3% or whatever. You can make whatever assumptions you want and then do this kind of analysis of how cheap it is and whether you can buy it with a good rate of return. What is important is the exercise.

How do you know these are reasonable projections? A lot of times you can't make reasonable projections so you go to the next one. This is somewhat predictable with a lot of data points and it is a semi-monopoly. You have to assume conservative assumptions and it still comes out very cheap. Then you might have something great.

It is a great exercise regardless of how it comes out.

Q?: How do you project FCF?

Look at history and companies that have made acquisitions. I assume it to continue and I assume a low return. If they make a \$134 million in acquisitions and they make 5% on that.then divide by EPS.

Take $22/10 = \$2.20$. A lower number.

What multiple to use? Look at current stock price to that multiple and compare it to the alternatives. I make the assumption beyond five years too difficult. I am comparing *MSFT*'s five year earnings to EBay's on the same basis. Even if EBay may not have a higher probability of growing faster in five years.

What are the range of potential outcomes?

Thank you for listening.

Applause!

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End