

From: Warren Buffett [warreneb@ix.netcom.com]
Sent: Thursday, August 21, 1997 3:13 PM
To: Jeff Raikes
Subject: Re: Go Huskers!

hi, jeff;

i have so few friends who use e-mail that I only look for it once a week or so (and usually find nothing) so excuse the slowness in responding. I am also reasonably fast at typing but poor in the accuracy department and find it easier just to plow ahead rather than correct, knowing i am always writing to those who will find a little deciphering an interesting but easy challenge.

I am afraid you have the Husker-Husky situation correctly handicapped. We need a miracle and it's unlikely to happen in a stadium in which Frost will not be able to hear a word he shouts. I hope Osborne has had him working on hand signals all summer.

Your analysis of Microsoft, why i should invest in it, and why I don't could not be more on the money. In effect the company has a royalty on a communication stream that can do nothing but grow. It's as if you were getting paid for every gallon of water starting in a small stream but with added amounts received as tributaries turned the stream into an Amazon. The toughest question is how hard to push prices and I wrote a note to Bill on that after our December meeting last year. Bill should have anticipated Bill and let someone else put in the phone infrastructure while he collected by the minute and distance (and even importance of the call if he could have figured a way to monitor it) in perpetuity.

Coke is now getting a royalty on swallows; probably 7.2 billion a day if these average gulp is one ounce. I feel 100% sure (perhaps mistakenly) that I know the odds of this continuing-again 100% as long as cola doesn't cause cancer. Bill has an even better royalty-one which I would never bet against but i don't feel i am capable of assessing probabilities about, except to the extent that with a gun to my head and forced to make a guess, i would go with it rather than against. But to calibrate whether my certainty is 80% or 55%, say, for a 20-year run would be folly. If I had to make such decisions, i would do my best but I prefer to structure investing as a no-called-strikes game and just wait for the fat one!

I watched Ted Williams on cable the other day and he referred to a book called the science of hitting which i then ran down. It has a drawing of the batters box in it that he had referred to on the show with lots of little squares in it, all parts of the strike zone. In his favorite spot, the box showed .400 reflecting what he felt he would hit if he only swung at pitches in that area. Low and outside, but still in the strike zone, he got down to .260. Of course, if he had two strikes on him, he was going to swing at that .260 pitch but otherwise he waited for one in the "happy zone" as he put it. I think the same approach makes sense in investing. Your happy zone, because of the business experience you have had, what you see every day, your natural talents, etc. is going to be different than mine. I am sure, moreover that you can hit balls better in my happy zone than i can in yours just because they are fatter pitches in general.

Lets talk more about this when we get together. As a beginner I always feel that when i send off any e-mail, it is going to vanish into the ether and i would hate to have that happen with everything I know. GO HUSKERS—warren husky m: Jeff Raikes <jeffr@MICROSOFT.com>

> To: Warren Buffett, Berkshire <warreneb@ix.netcom.com>

> Subject: Go Huskers!

> Date: Sunday, August 17, 1997 9:37 PM

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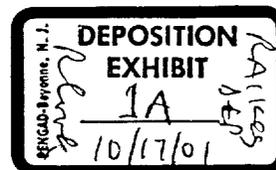
> Warren, I apologize in advance for this being a long note. I do hope you find it interesting, and be certain I don't expect a long reply (or any reply at all for that matter). Perhaps sometime we'll get a few minutes where I can get your reaction to the thoughts on business below.

>

> Go Huskers!

>

> We're looking forward to seeing you in a few weeks for the Husker game.
> Please let me know if there is anything I can do to make your stay in Washington more enjoyable (and a little more Husker-oriented!), and I will also check with BillG on the plans and how I might help.



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- >
- > I'm sad to say I'm very pessimistic about our prospects. You've
- > probably noted that Washington is very highly ranked this year. They
- > have Huard, arguably one of the top 2 or 3 pro-style quarterbacks in the
- > country - and only a sophomore. And they have an outstanding defense.
- > In the meantime, the Huskers are replacing eight starters on defense,
- > and the spring game showed that Frost still can't throw the ball well
- > enough. Without a balanced attack on offense, we'll have difficulty
- > against their speed. And Huard has the potential to pick apart our
- > secondary - we'll need an outstanding plan on pass rush, equivalent to
- > the "Philadelphia Blitz" employed at the Nebraska vs. Florida Fiesta
- > Bowl championship game.
- >
- > I hope you're hearing better news from fall practice. People here know
- > I'm a huge Husker fan -- I can't tell you how painful it would be for me
- > to go through two more losses to the Huskies.
- >
- > The Making of An American Capitalist...
- >
- > Tricia and I took the kids to Disney World, followed by a short vacation
- > to Nantucket and Cuttyhunk (a small island off Martha's Vineyard). I
- > spent part of the vacation reading Lowenstein's book (The Making of an
- > American Capitalist) - and really enjoyed it! On the way from Cuttyhunk
- > to Boston/Logan airport, we drove down Cove Road in New Bedford trying
- > to find the Berkshire-Hathaway mill. While I saw a few old mills, I'm
- > not really sure which might have been the one - I was looking for the
- > clock tower. Or perhaps it has been torn down.
- >
- > The book got me thinking about your golf tournament, the after-dinner
- > "Talk with Warren", and the inevitable question - why don't you invest
- > in Microsoft or high technology? The Lowenstein book provided some
- > stimulus to ponder the question, and I thought it would be fun to share
- > some thoughts with you on the subject. But I should emphasize my intent
- > in doing so is not to try to change your viewpoint (though I hope it
- > doesn't reinforce your view!). I just view this as a fun discussion or
- > intellectual exercise. While many people would see our business as
- > complicated or hard to understand, I am absolutely convinced an astute
- > investor can learn our business in only 3 to 4 hours (and probably less
- > than two hours if BillG explained it!).
- >
- > In some respects I see the business characteristics of Coca Cola or
- > See's Candy as being very similar to Microsoft. I think you would love
- > the simplicity of the operating system business. E.g. in FY96 there
- > were 50 million PC's sold in the world, and about 80% of them were
- > licensed for a Microsoft operating system. Although I would never write
- > down the analogy of a "toll bridge", people outside our company might
- > describe this business in that way. Those 40 million licenses averaged
- > about \$45 per, for a total of about \$1.8B in revenue. By the way, the
- > remaining 10M PC's were largely running Microsoft operating systems - we
- > just didn't get paid for them. This problem - piracy - if reduced, is
- > one of the key upsides to our business.
- >
- > In FY2000, there will be about 100M PC's sold. We think we can reduce
- > piracy to 10% and license 90% or 90M of the PC's. But we also have
- > "pricing discretion" -- I think I heard this term used in conjunction
- > with your pricing decisions on See's Candy. We will be transitioning
- > the world to a new version of our operating system, Windows NT. Today,
- > we get more than \$100 per system for NT, but only on a small percentage
- > of the PC's. But NT will be on closer to 70% of the PC's sold in
- > FY2000. We can achieve average license revenue of \$80. So 90M licenses
- > at \$80 per license totals about \$7.2B, up from just under \$2B in 3 to 4
- > years. And since there are effectively no COGs and a WW sales force of
- > only 100-150 people this is a 90%+ margin business. There is an R&D
- > charge to the business, but I'm sure the profits are probably as good as
- > the syrup business!
- >
- > There is actually upside in the number of PC's sold. Similar to your
- > analysis of Coca Cola, the penetration of PC's in International markets
- > leaves a lot of room for growth. In the US, the number of PC's per 1000
- > people is around 400 or so, but the number drops off rapidly to 100 or
- > less in most countries, even in some of the European countries.
- > (Unfortunately, I'm not in Seattle now so I don't have these numbers at

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- > my fingertips, but Steve Ballmer can recite them from memory.)
- >
- > The business described above is what we call the OEM (Original Equipment
- > Manufacturer) business, meaning our revenue comes from the manufacturers
- > of the PC's. The majority of the rest of the business is called the
- > "finished goods" business. It consists of businesses or individuals
- > buying office productivity software, educational or entertainment
- > software, etc. Again the structure is very simple. A PC is just a
- > razor that needs blades, and we measure our revenue on the basis of \$
- > per PC. In FY96, nearly 50M PC's were purchased and Microsoft averaged
- > about \$140 in software revenue per PC or \$7B. This amount is in
- > addition to the OEM royalty business I described above. (Steve Ballmer
- > can recite the number of PCs and \$ per PC to you off the top of his head
- > for just about any country in the world; BillG can probably do the same
- > though he doesn't spend as much time on that as Steve.)
- >
- > So in some sense that is it. There are a certain number of PC's that
- > get sold, a growing amount of Microsoft software per PC, the power to
- > use the brand to sell even more software, some pricing discretion,
- > international market growth, and the opportunity to grow revenue by
- > further reduction in piracy. Obviously I'm not going through all the
- > details we'd discuss in a couple hour session, but that is the heart of
- > the business. Of course there is the R&D invested to build the
- > software, but that is similar to Disney continuing to produce new
- > content, or Nebraska Furniture Mart continuing to keep their format
- > fresh, and an investment that BillG manages very closely.
- >
- > Even some of the new "media" businesses are really not that new or
- > different. Take our WebTV acquisition or the Comcast deal. I see
- > articles covering those investments and describing Microsoft as becoming
- > a media company. The real goal is to figure out a way to get an
- > "operating system" royalty per TV. 10's of millions of TV's per year at
- > \$10-\$20 per TV is a nice little "operating system" business.
- >
- > There is a tremendous strategic synergy between the "finished goods
- > business" and the OEM operating system business. E.g. we have about 90%
- > share of office productivity software with Microsoft Office, and that is
- > a great business (about \$5B, also 85%+ operating margin). But also
- > important is the fact that this software is heavily valued by the actual
- > users (operating systems are a bit more invisible to the user), and they
- > resist shifting brands. If we own the key "franchises" built on top of
- > the operating system, we dramatically widen the "moat" that protects the
- > operating system business. I.e. if I owned the most successful daily
- > newspaper in Buffalo, I wouldn't want to leave it to my competitor to
- > own the Sunday edition.
- >
- > Let's build on this analogy and the strategic synergy between the
- > operating system and the software that runs on it. It helps explain the
- > investments we are making in Pete Higgins business (Interactive Media,
- > like MSN, MSNBC, Expedia, Sidewalk, etc.). Again, some newspaper and
- > magazine articles would say that Microsoft is trying to become a media
- > company. But I prefer to view it as investing in the potential "user
- > franchises" that will help protect our operating systems businesses in
- > the future. We hope to make a lot of money off these franchises, but
- > even more important is that they should protect our Windows royalty per
- > PC, and hopefully our royalty per TV. And success in those businesses
- > will help increase the opportunity for future pricing discretion.
- >
- > So I really don't see our business as being significantly more difficult
- > to understand than the other great businesses you've invested in. But
- > there is one potential difference that worries me, and it is a key part
- > of the reason I spent the time to share these thoughts with you. The
- > difference I worry about is the "width of the moat." With Coca Cola,
- > you can feel pretty confident that there won't be a fast shift in user
- > preferences away from drinking sodas, and in particular Coke. In
- > technology, we may more frequently see "paradigm shifts" where old
- > leaders are displaced by new. Graphical user interface replaces
- > character user interface, the Internet explodes, etc.
- >
- > In the absence of a paradigm shift in technology, market shares seldom
- > change by more than a few points. With a paradigm shift, the shares can
- > rapidly change by dozens of points. I spent my first ten years at

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- > Microsoft building Microsoft Office... We were way behind in share most
- > of that time (less than 10%), but the shift to graphical user interface
- > was the paradigm shift that allowed us to displace the old leaders
- > (Lotus 1-2-3 and WordPerfect) and now be at 90% share. Of course key to
- > this shift in share, was their failure to identify the computing
- > paradigm shift and properly invest in it. They were the leaders and
- > they could have chosen to cannibalize themselves. But they didn't act
- > fast enough and were scared that investing in the new paradigm would
- > open the door for us - ironically it was their slow pace that opened the
- > door.

- >
- > I remember one of our very first conversations in 1991. You asked me my
- > view on what happened to IBM. I don't remember exactly what I said. I
- > think their addiction to the power they had in the previous generations
- > of computing, really blindsided them from the paradigm shift of the PC
- > and client-server computing.

- >
- > In technology, the moats may be narrower. It is amazing how fast the
- > Internet exploded. Or how quickly Java gained notoriety. We have some
- > great moats, but even so, 18 months ago analyst were questioning whether
- > we could move quickly enough. (Obviously, that turned out to be a great
- > time to buy Microsoft!)

- >
- > I am very confident about our business for the next 5 to 10 years. But
- > I will admit it is easier to be confident about Coke's business for the
- > next 10 years. In short, I've long had this sneaking suspicion that it
- > is not that you don't understand this business. (In fact, BillG has
- > probably already explained all of the above to you and I apologize for
- > boring you with this, but it was fun and good for me to write it down.)
- > My theory is that you don't invest in technology or Microsoft because
- > you see the moats as narrower; too much risk and the potential for a
- > fast paradigm shift that would too quickly undermine your equity
- > position.

- >
- > Since Microsoft is the business I understand (i.e. I have a narrow
- > circle of competence!) and I subscribe to your views on investments,
- > well over 90% of my net worth is tied up there. (Thanks to BillG, I'm
- > well into the nine digit range.) I feel fine about having 90%+ tied up
- > in Microsoft. We have a "safety net" of tax free municipal bonds so I
- > know the family will be OK if something happens. And we don't intend to
- > leave much to the kids, so I'm simply building a huge pile of chits to
- > someday turn back to society. I do wonder about the time period ten or
- > twenty or more years down the road. If at some point then the outlook
- > for Microsoft has changed, I hope I will have learned enough from your
- > approach such that I will have the ability to identify new areas of
- > intrinsic value and continue to grow the pile of chits at a high rate.
- > But for now, I'm heads down selling more software...

- >
- > I'm curious as to what you think about the Lowenstein book. I'm sure it
- > is difficult to have so much of your life spread across the pages, on
- > the other hand, there are so many things for you to be proud of. It was
- > great to gain an understanding of Graham's approach, and more
- > importantly your significant advancement of the approach. I found the
- > arguments of the EMT (efficient market theoreticians) just laughable.
- > They should spend a few days at Disney World so they can observe crowd
- > theory in action. Believe me, the longest lines don't necessarily
- > translate into the best value! But the best part of the book was to
- > learn more about your values, and in particular the discipline of
- > character that leads to your success in investing. I wish there were a
- > magic formula for teaching this to our children!

- >
- > This leaves me one final task for this note. I've done a very poor job
- > of adequately thanking you for all the great things you've done for me -
- > golf at Augusta, Seminole, the Buffett Classic, and in particular, the
- > opportunity to listen in on great conversations and learn from you. I
- > want you to know I've really appreciated your kindness, and if there is
- > ever anything I might do to reciprocate, please let me know.

> Thanks. Jeff Raikes

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