



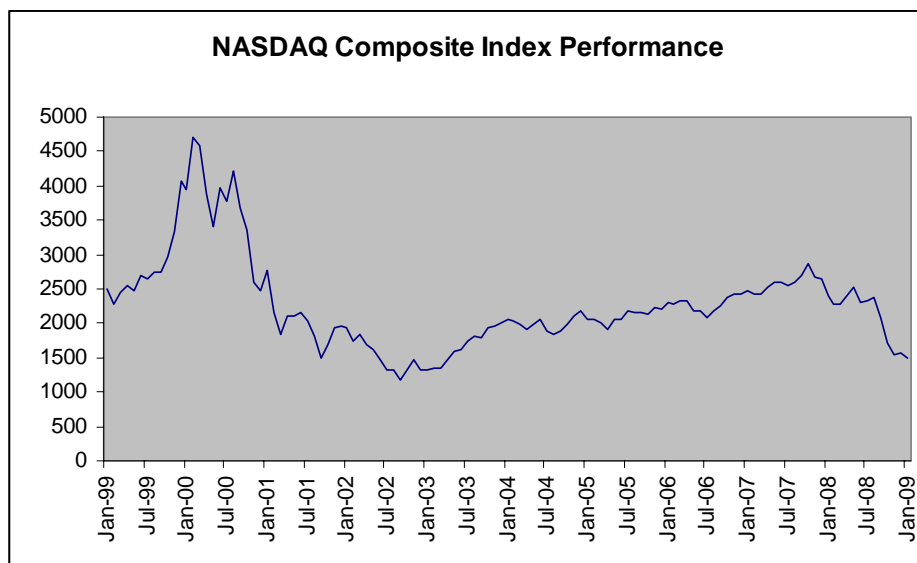
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### **The Opportunity Ahead**

The start of this new century, from an investor's perspective has been auspicious indeed. Forced to suffer through a collapsing worldwide economy, the apparent wholesale restructuring and nationalization of industries and the worst asset declines since the Great Depression, investors may be excused if seeming unwilling or unable to tolerate the idea that a "new" economic stability will be achieved anytime soon. And yet, as we proceed through 2009 a bottom will likely be found and a concomitant increase in risk appetite achieved. The economic world will be very different, however. The credit bubble that supported substantial worldwide growth will have deflated, shifting away from de-leveraging consumers onto the books of governments. The financial services industries, whose creative machinations led to enumerable new products and services that catalyzed past growth rates (and led to enormous problems), will have become wards of the state no longer in a position to stimulate the kinds of growth rates witnessed in the past. Excess capacity will have been worked off across many industries- construction, retail, and manufacturing, to name a few. Governments will have replaced consumers as the marginal buyer for goods and services. And a new form of "managed" capitalism will have emerged (more regulation). Rather than a "V" or a "U" shaped economic recovery, these factors would appear to yield an "L"- a steep decline followed by an extended period of little to no meaningful growth. Against this backdrop, it might appear foolhardy to speculate about new investment ideas but change always breeds opportunity and it will be no different this time around regardless of the magnitude of the change.

### ***A Long Gestation Period- the Lost Decade***

The 1990's were characterized by the rapid adoption of a host of new technologies (the internet), the build out of maturing technologies (PC's, cell phones, networking), and the disintermediation these technologies allowed. Yet since the collapse of the NASDAQ bubble in 2000, nothing much has happened from an investment perspective largely due to market saturation issues. In fact, using the NASDAQ Composite Index as a proxy, this sense of running in place is graphically illustrated below.



Notwithstanding the fact that investors apparently didn't have much to get excited about over this period, a decade long gestation was occurring for a number of new technologies, whose birth is only now just occurring. And while market development is likely to be somewhat subdued in this more challenging macroeconomic environment, scarcity of widely available growth opportunities will lead to premium valuations in these instances. So what are some of these new technologies? Alternative energy solutions (the intelligent grid), new automation opportunities (the home), new computing /communications platforms (smart phones and net books), new computing paradigms (cloud computing), and new corporate cost savings technologies (virtualization) are all, to varying degrees, about to influence various markets in 2009 and beyond. And of course underlying these broad-based technologies will be building block technologies like semiconductors, new infrastructure, and required intelligence in the form of software. And as you might expect, we have investment ideas in all these areas.

### *Alternative Energy Solutions*

Work has been underway for quite some time in a number of energy-related areas. Sexy technologies like wind, solar, and alternate fuels based on biomass garner the headlines, but real progress may be made elsewhere. Specifically, much attention is now being paid to the nation's electrical grid. Our ability to get power to where it needs to be in a timely and cost effective manner has been challenged by limitations in the transmission and distribution networks, regulatory miscues, and outmoded 19<sup>th</sup> century technologies. This may all be about to change as part of various federal government stimulus programs in combination with a number of new technological developments. Attempts will be made to place intelligence inside the power network allowing for better management of power resources. More efficiently and cost effectively managing the flow of electricity could lower generation requirements as well. Furthermore, a smarter grid, with end-to-end intelligence, should allow for on-demand real time feedback, permitting load balancing techniques other than the forced rolling blackouts and brownouts we now some times have to suffer through. A number of both public and private companies have been working on various aspects of this problem for quite some time. And we anticipate that 2009 will be the year when real progress has the potential to be made particularly when environmental awareness and concern is on the rise.

## *Automating the Home*

A companion opportunity to the intelligent grid could be the application of various technologies to automating various aspects of the home. Over the years, information technology has been applied to automating various segments of business- first back office tasks like accounting and manufacturing, followed by front office processes like sales automation and marketing. Then, these technologies were applied to automating various aspects of the consumer experience, shopping, leisure, and entertainment. Now we may be at the cusp of applying various technologies to automating parts of the residential experience.

Much work has centered on delivering and moving video and data around a home such that access to information and entertainment could be available anywhere on demand within a residence and viewed either on a television or a computing platform. We expect this evolution to continue. But imagine if appliances could be networked, their respective functions intelligently managed, and their power requirements effectively monitored for efficient usage. The cost savings could be enormous. A lack of standards and manufacturer participation, perhaps more than technological limitations, has made this vision very difficult to implement. Yet here again, energy concerns, changing consumer attitudes, new found cost justification models, along with the emergence of some standards and technological developments could begin to make this theoretical opportunity more practical in 2009.

## *New Computing/Communications Platforms*

In 2007, Apple introduced its first generation smart phone, the iPhone. Other vendors had introduced smart phones earlier, but product limitations gated overall appeal. Since its introduction, Apple has sold about 17 million iPhones units with the majority of these units sold in 2008. Recently, other entrants into this category have been announced including products from Research in Motion, maker of the Blackberry, and Palm, maker of the Treo. All of these participants are targeting today's mature cell phone market where worldwide annual unit shipments exceed one billion devices. More to the point, an ecosystem of applications is developing around these products best exemplified by the Apple App Store and its 500 million downloads and 15,000 applications all within six months of availability. It is very clear that the smart phone will be the next important computing platform forcing other vendors to enter the market. This will create opportunities as well as cause dislocations. Moreover as these platforms proliferate, substantial pressure on cellular infrastructure will require various upgrades creating additional opportunities as well. All of which will occur in 2009.

A less obvious platform evolution is taking place in the portable computing arena; where the introduction of super lightweight computers powered by very efficient processors are having an impact. These platforms, dubbed net books, appear to be an evolutionary extension of the portability trend and as such, could cannibalize sales of their larger and heavier portable brethren, or rather these devices could be used as lower cost means of connecting to the internet (the platform of choice in a "cloud" computing scheme). But the market development bears watching to see if these devices enjoy some unique application in either case.

## *New Computing Paradigms*

Every few years, the information processing industry seems to come up with a new model as to how to make information access easier and more cost effective. Remember we went from centralized batch computing in the 1960's and 1970's to distributed on-line computing in the 1970's and early 1980's to client server computing in the 1980's and 1990's to thin client computing in the late 1990's and early 2000's. The next transition appears to be "cloud" computing where the cloud is a metaphor for the internet and much of the processing and information retention and management is then done out in the cloud before being delivered via the internet to the ultimate user. Early implementations of this approach are found among vendors who delivery software as a service over the internet, like Salesforce.com. The appeal here is one of centralized management and control and the ability to buy only the information processing you need, delivering information technology as a utility. Taken to an evolutionary extreme, one could imagine eliminating today's personal computer, having the cloud host all information requirements and then delivering said information to a new slimmed down inexpensive platform of choice. And while this extreme is not likely, 2009 is the year when the evolutionary path may become more apparent. Here again, substantial dislocations and opportunities will be created as this process unfolds.

## *Cost Savings Technologies*

Many new products and services fall under the rubric of cost saving technologies but none appear to offer more customer appeal right now than virtualization. Defined simply as the ability to separate software resources from the underlying physical hardware resources, virtualization when implemented properly permits hardware consolidation, improves utilization rates, allows for centralized management and control, and thereby lowers cost of ownership. The traditional x86 hardware architecture was designed to run a single operating system and a single application. But virtualization products separate the software from the hardware and implement a management layer between the two that allocates the hardware resources across multiple software environments. It is a technology that can be applied to a number of IT areas allowing for server consolidation, storage consolidation, and the ability to deliver different operating environments to any desktop. 2008 saw the leading company in this category, VMWare, post revenues of almost \$2 billion and most implementations seemed to still be in various trial phases. 2009 will bring substantial new entrants, new product offerings, and corporate roll-outs of various virtualization technologies. We believe this will be one of the few areas of IT spending that will continue to grow in almost any economic environment.

Virtualization may capture the head lines, but the general theme of doing more with less suggests other technologies that offer rapid corporate pay back in the form of obvious cost savings should continue to enjoy strong support in this new economic environment as well. One of the biggest burdens facing IT departments globally is managing increasing storage requirements as more and more information is processed and saved in digital form. Virtualization can help, but other technologies and utilities are required as well. For example, applying new techniques to the areas of backup and recovery in the form of only identifying the changes in data that need to be protected rather than replicating whole data sets allows for enormous cost savings in the amount of storage required for these functions. Similarly, as users demand access to information anywhere and anytime, corporate IT departments are deploying various wide area network

(WAN) optimization techniques to increase productivity and reliability while cutting costs. Here again, the pay back of implementing these technologies is compelling enough to allow for growth in a more difficult environment. We offer these examples not as a comprehensive list, but merely to highlight the point that cost saving approaches will be king and that there will be many kingdoms created.

### ***The Building Block Technologies***

Associated with all of these themes are very specific sets of building block technologies. New platforms will propel semiconductor sales for vendors with the appropriate design wins. Increasing usage of these devices will mandate infrastructure upgrades across various networks in turn catalyzing new technology adoption (3G going to 4G, for example). And new development tools and software infrastructure environments will enable new applications, offering investment opportunities in a number of arenas. Thus it becomes very evident that a new investment roadmap will have been created.

### ***What about Valuations?***

Identifying investment themes is only part of the overall equation. Perhaps even more critical to investment success is identifying what price to pay. In this regard, it is interesting to look at some valuation metrics coming away from this gestation period or lost decade.

If we go back to the fiscal year end revenues for two leading technology companies in 2000, we find that Microsoft was about a \$23 billion company earning about \$9.4 billion or \$0.85 per share with investors willing to pay about \$40 per share or awarding the company well over a \$400 billion market capitalization; similarly, we find that Cisco was about a \$19 billion company at the end of its 2000 fiscal year generating earnings of about \$2.6 billion or \$0.36 per share with investors willing to pay \$65 per share or awarding the company about \$480 billion market capitalization.

Now while we recognize changes in company positioning and anticipated growth rates along with overall risk appetites will impact valuations, it is worth noting that at the end of their respective 2008 fiscal years these same metrics reveal quite a different scenario. Microsoft was over a \$60 billion company earning \$1.87 and its shares are on sale today for about \$18 or a market capitalization of about \$160 billion. Cisco was just under \$40 billion in sales in fiscal 2008 earning \$1.31 with shares for sale today at about \$17 or a market capitalization of around \$100 billion.

To underscore, in the case of Microsoft the company is about three times bigger and its market capitalization is off by 60%. In the case of Cisco the firm is over two times larger and its market capitalization is down by almost 80%.

These two examples highlight the change in valuations pervasive across the investment landscape and, when viewed in combination with the themes discussed earlier, dramatically point to the opportunity!

### *Some Concluding Thoughts*

Our ability to predict the future may not be any better than anyone else, but our skill and experience in identifying secular changes, emerging investment themes, and valuation opportunities gives us the confidence to make intelligent investment choices in a very difficult environment. And we would invite other investors to join us in 2009.