# How to Manage the Recession

## Economics as a tool for managing the Technology Sector

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# Abstract

In knowledge based industries, how has the changing economic climate in the United States altered hiring and training programs? Technology related jobs have faced a shortage of educated workers in the past and this trend was expected to continue in the future (See Waiting for Superman). With this situation in mind, has this sector followed the stereotype of the recession by laying off workers and experiencing lagging sales, or have they found new ways to manage through the recession and make it an opportunity for growth.

My aim in this study is to compile quantitative data from various sources to paint an economic picture of the technology sector from the years 2007 through 2010; once this is completed and these figures are analyzed, they will be compared to economic benchmarks (such as the Dow Composite Index and the S&P 500) to compare their results. Growth rates will also be reviewed for these companies in key markers such as revenue growth and employee headcounts.

Once analysis is completed and statistical data have provided concrete figures on which to base a deduction (as per the neopositivist approach this paper takes) a look at the management tactics that were used by these companies to achieve said results will round out the conclusion. By looking at the documented growth or decline of these companies figures, determining how management handled such situations will shed light on the potential ways in which management can handle a recession. Change factors affecting an organization can have significant consequential effects (See Newell et al 2009; Sandberg and Targama 2007), though these are not always negative, even when initially perceived as such. Framing an incident such as the recession in the right way, along with encouraging adaption and innovation during a change can enhance the quality of the people within the company, their work, and in doing so, improve profitability.

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# Part I: Problem Identification

## 1. Rationale

*Problem Situation:*

The global economic situation since the time of the recession has been relatively weak; economies around the world have taken a serious hit to their financial standings in all markets. Everything from the auto industry to the financial markets, to small businesses has felt the impact of the recession. That being the case, has the technology sector been able to weather this storm economically because of its unique position of being an industry that already had a large deficit of qualified workers available to perform the work required in these companies. Given the increase in qualified workers now seeking jobs, has this industry been able to move ahead while other industries are struggling or have they been taxed by the same problems as other industries. Furthermore, without economic assistance that organizations in the financial sector and automotive industry received when the recession started and the United States issued a bailout for these sectors, has the technology sector been hindered by not receiving these funds or not.

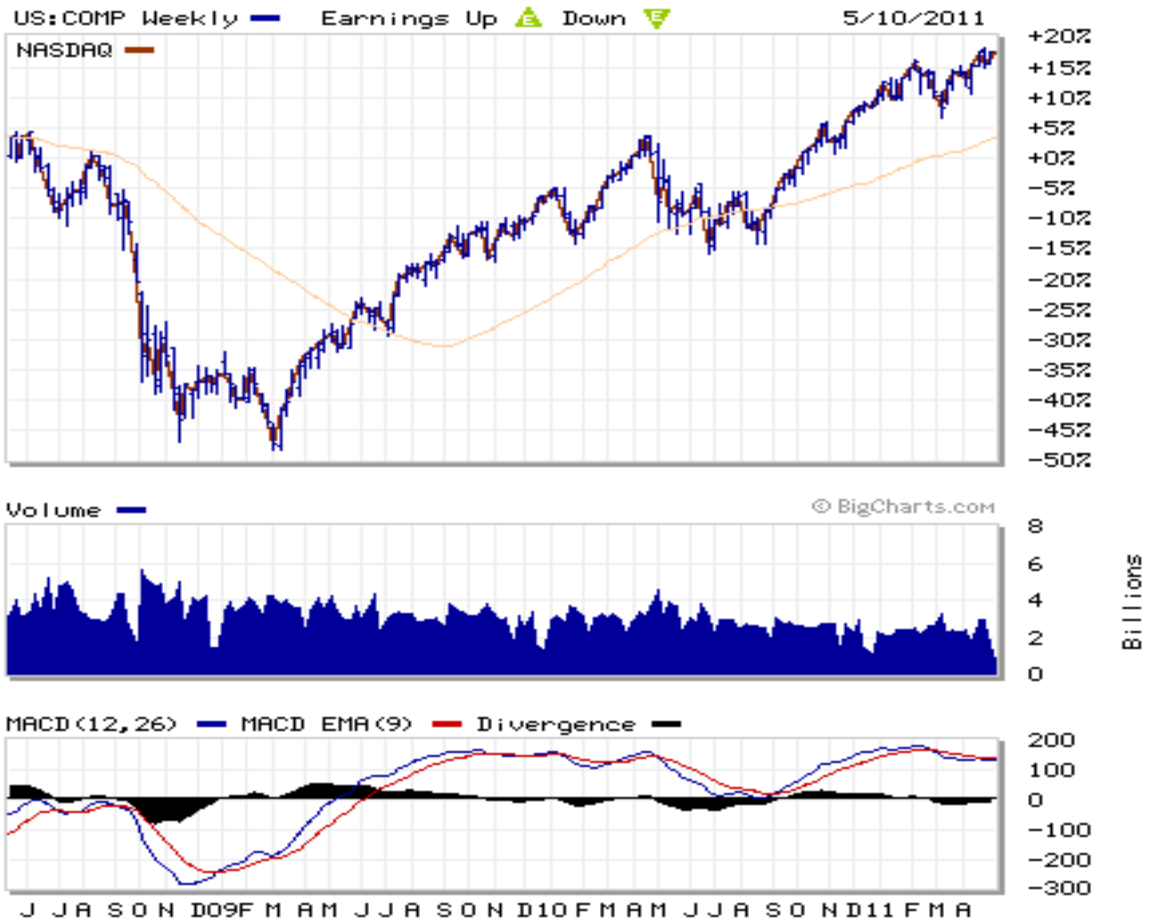
When the *Great Recession* began in October 2007, nobody was really sure what was going on or what would happen; within a year, several large financial institutions had collapsed, including Bear Stearns and Lehman Brothers, along with a whopping 363 banks within the United States from October 2007 (FDIC 2011). Further indicators that a recession was taking place came by way of housing foreclosures as interest rates skyrocketed and many workers found themselves without jobs when the companies they worked for collapsed. As the economic troubles continued, large scale problems began to surface around the globe; the banking system in Iceland collapsed in 2008 and countries such as Latvia, Estonia, Ireland, New Zealand and Portugal are all struggling. The value of the dollar, valued at 115 Japanese Yen/Dollar for example on September 1st 2007, has plummeted to 81.69 Japanese Yen/Dollar as of May 1st 2011, a change of -29.1% (Oanda 2011). Unemployment has rocketed from 4.6% in 2007 to 9.6% in 2011 (BLS 2011), and this figure does not take into account workers that have taken part-time employment positions instead of their previous full-time positions.

Although technology services may indeed have a severe shortage of skilled workers, it may be the case that the recession sparked a layoff craze within this industry as well; if this is the case, than there is

much uncertainty around how this industry will perform in the current recession as related to hiring and training practices. This paper augments this unknown variable by documenting the experiences and expectations of workers within the technology sector that have seen firsthand the manner in which their companies handled this recession; were employees laid off, trained less, or expected to perform more work for the same pay? Or were the companies quick to act in snatching up experienced talent that had recently been let go and put them to use within their organizations? These questions will be explored and scrutinized throughout the duration of this study. The technology sector is an area of significant importance to the economy, but furthermore is in a unique area as innovation is driven by advancements in technology; as such, the potential for success within a recession may lie in the management capabilities within companies in this sector. An outline of the technology sector follows.

*Technology Sector*

The technology sector, as far as the recession goes, was hit just as roughly as any other sector initially, yet when looking at the valuation of the technology sector as reported by the NASDAQ composite index, the sector has all but bounced back entirely and more since the recession hit. This has not been a perfect situation however, with damage being done to stocks and profits in every company; how has the technology sector managed.




*Source NASDAQ

This chart represents the value of the entire NASDAQ (top chart) over the course of three years as of May 10, 2011. As noticed by the chart, there was a dramatic decline in the value of technology companies during the latter half of 2008 but since that time it has more than turned around. This begs the question as to why the technology sector has been able to rebound to pre-recession levels while nearly every other industry is still trying to maintain balance. The middle chart displays the volume of trades per week in the NASDAQ, and as notices, there has been really no decline in the volume; during a recession typically volume increases as stockholders try to sell off their stocks to minimize losses. As noted however, though the volume did increase during the worst part of the recession for the technology sector, it has not dwindled, and instead a healthy volume has been maintained; this implies that there is still significant faith in the technology sector as a whole for growth, otherwise transactions would decrease, and subsequently volume would reflect this.

This is not to say that everything has been turning around; the video game industry is a unique example of how the recession has been hurting companies. The video game industry, often thought to be immune to recessions, has finally found itself apparently succumbing to the pressures of reduced consumer spending; more and more, people are either not making the purchases, or in some cases, pirating software (video games) rather than purchasing them to save money. The recession has given more people the motivation to cut corners in every way, and paying $50 or $60 or more for a video game is often out of the question for many people who are struggling to make ends meet. As such, piracy has become a tool for some who have never considered the method before, while some are able to give up the gaming habit all together. According to Joystiq.com, a website dedicated to following trends in the gaming community, as of July 19, 2009, the gaming industry finally found itself in a slump. The figures they reported were as follows.

Total industry sales: 31% drop year on year
Hardware sales: 38% drop year on year
Software sales: 29% drop year on year
Accessories: 22% drop year on year

*Source Joystiq

This all stems from the industry that was supposedly recession proof during a time when the technology sector is actually picking up. This begs the question as to whether or not the technology sector and the video game market serve similar clients or whether they fulfill similar needs. I would argue that gaming has the same clientele as the technology sector; the person that buys the most recent Apple iPad or computer is likely upgrading because they want improved graphics, etc. This is the market that the gaming industry server. It would be an interesting study to find out what made the changes in the gaming industry occur so uniquely while the rest of the technology sector improves; gaming however seems to go right along with other sectors. That is why for this report the study of the entire technology sector instead of just one was selected, so as to avoid potential variables such as this one skewing results.

## 2. Research Question/Statement of Problem

The essential question that this thesis tries to answer is this: How has the technology industry responded to the recession in regards to human capital management? As this question is rather ambiguous, the research that will be undertaken aims to give quantitative data that shows the situation of the technology industry and then couple it with practical management ideas. As the recession is ongoing, how has management treated this economic threat? Has there been an increase in firing throughout the recession to maintain costs, or have they found means to maintain their sales revenues and continue to employ workers by turning them to more innovative tasks in order to avoid redundancy?

How do you manage human capital resources practically? There are many different factors to consider, some positive, others negative. In regards to human capital management, themes such as those presented in French et al (2005) regarding the importance of employment security, compensation relative to organizational performance, and training are all relevant. Further ideas expressed in Newell et al (2009) regarding the concept of innovation and how it is created, managed and pursued (and consequently how management can accelerate and nurture these events) pertain to this study. When hiring, or even when firing, it is important that management concerns itself with not disrupting the synergy that exists between its business units and between the individuals among it. To accomplish this, the tactics mentioned above are important to consider, and just as importantly, when restructuring a company, whether it be downgrading, consolidating, or laying off employees, equal consideration must be taken. If a company lays off workers excessively, or prematurely, or does not consider the matter fully, they may run into the issues that Palmer et al spoke of regarding downsizing threats, issues regarding what happens when an organization changes through reducing their employee count. These include issues with employee retention, hard landings, survivor syndrome, cultural adjustment, and others (discussed in related literature later on).

As another tool for managers, beyond making judgments based on human assumptions, there is another asset at their disposal to make decisions more accurately. By using economics as a means of understanding the financial and economic standings of companies within this sector and then finding connections, the intent is to break the figures down into sub-sections that include separate dimensions of the larger problem. Once the figures have been announced, data compiled, and the economic theory presented, then proper management techniques can be applied and recommended. Through this

method, and by compiling the results and combining them with other means, a better understanding of the topic being discussed will present itself.

## 3. Importance of the Study

*Implications and Importance*

Many studies have been done over the years involving the practices of hiring vs. training or firing vs. retention but seldom has the economic opportunity come along to study such methods in a recession atmosphere. Management research is still a relatively new field, and human capacity as a resource is an even more recent phenomenon; since this time there has been no true recession or depression that has impacted the United States in such a way that it caused long-lasting, tangible results. The current recession which began in 2007 has rippled throughout the entire world, causing financial turmoil, rises in unemployment, and bankruptcies across a myriad of economic sectors.

This study invites readers to look at a recession-laden economy as one of both hardship and opportunity; on one hand, reduced consumer spending and decreased monetary funding creates a challenging market for businesses to compete in, while on the other hand, recessions can also be seen as an opportunity to requisition talent that would have normally not been present in the potential labor-pool of the country.

This paper contributes to the knowledge base that managers can draw from to determine the best course of action for their company in such a situation. By looking at the actions of many companies, and furthermore reviewing their results over the span of the recession, managers that are faced with an economic dilemma such as this one will be able to consider how the effects of particular actions may contribute to their company's success.

Looking at some of the issues a company faces when in a recession from the view of Palmer et al. (2009), there are significant implications for companies that decide to reduce their workforce, including issues with Employee retention, Survivor syndrome, and questions about Due diligence. These are three of the critical factors an employer must consider when looking at whether or not they need to reduce their workforce, or how they can cope with a recession in other ways. The threats brought upon companies through the economy are severe in a recession, but jumping the gun so to speak and laying

off employees can be even more detrimental.

This is not to say that the paper will offer a best-practice view of how to run a company during a recession, but rather will provide a view of how different companies have operated during this period of uncertainty and what the results have been. By judging the results of the companies in this paper against their own organization, the manager will be able to make knowledgeable choices based on data taken from companies operating in a similar market and with similar goals.

Management is a tool, and managers themselves are facilitators for growth within their company. As a manager in a knowledge based company, understanding that human capital is a resource just as important as any other is critical. In order to maintain strong market presence for a company, management must understand their problem environment, that is, the economic factors affecting the company, the competitive market they are in, what competition is planning, and being able to anticipate these actions to gain a competitive edge. The ability to recognize these factors lies in understandings of economics and rational business practices, but that is not enough; management must be able to then filter this information into doable practices within the organization. By learning framing, the managerial art of leading or changing perceptions of a situation to make them adhere to the goals of the company, to mastering discourse within and among the business, managers can become powerful tools for the organization, empowering employees when times are tough and strengthening morale when other companies falter.

Recessions can be seen as a sort of change, or a catalyst for change, and that does not always have to imply negative effects; in the technology sector for example, the recession led to the creation of the Intel Atom processor, a microprocessor that consumes much less energy than a normal computer chip (1watt as opposed to 65watts or more), yet provided performance on par with other chips with higher currents. Furthermore, this microprocessor was considerably cheaper to produce, and therefore was able to be sold at reduced prices as compared to other chips. Finally, by implementing this microprocessor idea along different product lines, the Netbook, an extremely small portable laptop computer, became a new alternative for consumers looking for functionality and economic practicality in a new mobile device purchase. The recession then helped Intel move from traditional "more is better" practices to a "more with less" idea which proved to be very successful; had the recession not taken place, this chip may have not had the success it did given that consumers would have been less concerned with price and more concerned with power. So by understanding the recession as a change, not a negative economic event, but simply a change to their operating environment, management was

able to motivate their employees to pursue an excellent idea that pushed the company in new directions. This style of leadership, using a situation perceived as negative as a positive opportunity for the organization is one of the key characteristics that strong leadership uses to maintain success within their company.

**4. Thesis Structure**

This thesis is comprised of five primary sections, the first of which has already been covered (a brief background of the situation. Methodology follows, citing the reasons and methods taken to acquire data for this research. Section three provides information on the theoretical underpinnings that are used to rationalize the data that has been accumulated and allows an understanding as to the how and why data will be used. Once this is completed, and both the data collection method has been discussed and the theories being used to disseminate it have been reviewed, an analysis of the data will take place. This analysis will bring together the theories addressed, the data collected, and bridge them with the management tactics that were presented in the program. By uniting these three topics (knowledge management, economic principles, and the quantitative data gathered in the study) connections will be made showing how one can influence the other. Finally a conclusion will follow presenting recommendations and explaining how certain methods can work to further the advantages or prevent the disadvantages that the technology sector has over the rest of the market during this recession. By doing this, the fusion of economics and knowledge management, practical techniques along with understanding triggers within the economy will be highlighted, offering potential paths for management to take in weathering a recession in regards to the technology sector.

## Part II: Research Methodology

### 1. Research Design

The methodology rests in the grounds of neopositivism, or otherwise known as logical empiricism, a method involving the idea of using logic and bridging that with sociological research. The basic premise of this approach revolves around four key theses, which are outlined below.

1. Logical Atomism: "The view that the structure of the world mirrors the structure of our language or logic. Thus the scientific method based on logic would reveal to us the logical structure of the world" (Anselm). My approach to this study is in line with this rationale, using quantitative studies to logically assess situations and then grounding my conclusions through these.
2. Verifiability theory of meaning: "The meaning of a proposition was seen as being its method of verification in sense experience" (Anselm). Furthermore, "All meaningful statements had to be either tautologous or directly verifiable in experience" (Anselm). Again, through my research, I intend to create conclusions that are verifiable through the experiences presented within the economy and those events experienced by organizations. Through this, I can be certain that my conclusions contain valid meaning, and are not meaningless events.
3. Analytic-Synthetic distinction: "a clear distinction between the fact and the logical rules that governed their combinations. Analytic propositions are ones that are true or false simply in virtue of the meanings in their terms" (Anselm). Continuing on, there is a reliance on the connections experience makes between logic and the rules that regulate it. By adhering to mathematical projections, I conform to this method of study.
4. Emotivism: This final theses states that "All propositions that do not meet the verification criterion of meaning, which aren't analytic, are not cognitively meaningful at all. They are simply expressions of emotion" (Anselm). In the case of my data, as quantitative data was the source of the conclusions, my findings will adhere to this statement.

The approach of this paper lies in the basis of Aguste Compte's work in positivism and the manner in which answers can be found. The idea of a "quantitative, mathematical basis for decision-making"

(wiki) is the grounds for my research technique. It is believed that in order for a rational answer to be determined, it must be proved through mathematics, and in my thesis, the statistical research is the grounds for the conclusions drawn (See Comte 1844; 1865). Through statistics as a means of representing events, the success or failure of managerial methods can be determined. The following is a brief on the type of data that was analyzed as well as the means, choices, and rationale behind these selections.

The methodology of this thesis was to take a quantitative approach to data collection among technology companies over the past several years. Annual reports, earnings figures, and stock market positions for five companies spanning the realm of the technology sector were gathered and compared. The companies that were used were chosen specifically to represent different areas of the technology sector so as to provide an encompassing view of the industry and allow a better understanding of the market as a whole, rather than an individual segment. A short description of each company chosen and the reasons for their selection follow below.

The first company selected is Intel, a microprocessor manufacturing company that has large expenses related to R&D as well as manufacturing/fabrication facilities. This segment of the industry is a good indicator of how readily companies are willing to invest in new technologies, as microprocessor technology is arguably the heart of all tech-driven innovation; without the power new chips provide, advancements would be slower. Intel also is considered one of the top environmental friendly companies in the world, and is the third largest voluntary purchaser of green energy in the United States; because of this, Intel as a socially responsible company, may find the recession difficult to manage given the choices that companies must sometimes make when dealing with a crisis; this will have to be determined in the study.

The second company is Adobe, a software designer who is responsible for creating programs such as Adobe Reader as well as Shockwave, a program that is used to allow flash-based applications to run on computers. Furthermore, Adobe produces programs for designers such as Dreamweaver and Adobe Fireworks, both of which are used in computer modeling, rendering and design. This company's performance provides a look at the software market within the technology sector. Like Intel, Adobe is considered a socially and environmentally friendly company and was awarded honors by the United States government for their actions in socially responsible tasks; Adobe prior to the recession (these statistics are unknown now) was considered one of the best places to work in America, with over 80 different clubs and groups for their employees to join while at work, including everything from knitting

clubs to a fitness group (with fitness center on-site). How they have managed the recession where layoffs are the norm and subsequently morale tends to drop will be interesting.

The third company reviewed is HP, the world's number one supplier of personal computers, but also (more recently) a company involved in technology consulting and solutions. This company spans multiple industries in what they provide, but for largely will provide an idea of how consumption has changed in the recession; their products range from printers to laptops, to desktop computers and ink cartridges. Furthermore, HP supplies a lot of office equipment as well as private use systems, so the performance of this company is directly tied to how willing companies as well as consumers are willing to spend during these times. HP over recent years has been making changes within their business, restructuring to become a quicker more responsive company in order to stay ahead of economic trends; has HP's restructuring been effective, and was it done in time to mitigate the recession?

The forth company is Accenture, a consulting based firm that provides services to the technology sector; the reason for the selection of this company was to get an idea of if consulting services have been sought after more now that the recession is underway in attempts to streamline business and cut costs, or if the services have been falling as companies look to fix their problems internally and thus save expenses on outside companies. Although Accenture's business also falls into other categories such as management consulting, the company is tied to the technology sector more tightly than other big name consultancies in this researcher's opinion, and as such was the best choice when determining the decisions of technology companies in relation to external consulting services.

The final company analyzed was Activision/Blizzard, a video game production company that is the largest of any company in its field. The video game industry for a long time has been considered one of the "recession-proof" industries, and as such, I included this company into the comparison to validate this speculation. As noted earlier by data, the sales do seem to have decreased in that single year, but that may or may not have been a fluke. Furthermore, Blizzard runs one of the largest multi-player games on the internet, and as such has a regular revenue stream which does not require new game purchases, so that figure presented earlier may potentially be misleading; this is the reason for choosing this company for studies. Activision/Blizzard had merged just as the recession began, so seeing how they cope with the dangers of a recession while trying to manage and merge two different business cultures in a time where turmoil is present may have an impact on their success or downfall during the recession.

The data for these companies was drawn from different reports and graphed alongside each other to

show how they have handled the recession. Figures compared include stock prices over the last for years (2007-2011), earnings reports showing growth for each year, total employment (when available) throughout the recession, as well as net income comparisons. The data will look at whether trends in the technology sector tend to be positive or negative during this recession. If the trends are negative, the conclusion will be drawn that the technology sector, like every other sector, is being hit just as hard as the other industries, and management techniques will be analyzed to find problem indicators. If however the trends are positive, a look at the management ideas that have been initiated to sustain positive growth will be taken under review to determine how this was possible.

## 2. Sources of Data

The sources of data include historical stock market data, shareholder newsletters from various companies, and annual earnings reports for the past four years, income statements from all companies, and miscellaneous articles and publications when available to enhance data quality.

## 3. Assumption

*Assumption of Researcher:*

The assumption going into this study prior to any gathered evidence is that the firing of staff, especially senior staff with higher salaries (despite also having more technical skills) along with the reduction of newly recruited staff will prevail in a recession. The reason for this assumption is that capitalism as it is in the United States emphasizes the short-term financial profitability rather than long-term growth potential. The business practices in the United States, as opposed to a country such as Japan, are very nearsighted; long-term planning in a US company my involve a 5-year forecast, while in Japan or other similar countries, 10-year or longer forecasts can be expected. This is not a fault of the businesses, but rather a result of the culture that presides within the country. As such, it is expected prior to beginning this study that the technology sector, despite having advantages over other sectors during this recession, is going to show similar, if not identical trends to companies not in this sector. This reasoning comes from the idea of short-term capitalism and the notion that companies are more likely to lay off workers

and reduce budgets for innovation, training, and new product launches. Instead, a priority will be placed on short-term profitability, looking at quarterly income reports and stock prices, rather than long-term potential; this will lead to slower growth than the sector has the potential for.

With any bias aside, whether intentional or not, I feel that statistically there will in fact be cuts and reductions in the labor force within the technology sector. I expect slow, if not stagnant growth for profits in this time, in part due to lower consumer spending and confidence, but also because risk will be reduced in any way possible for the company, decreasing the chances to launch new products or research new technologies in an effort to horde cash and wait out the recession.

## 4. Scope and Delimitation

*Justification and Scope:*

This study encompasses the "technology sector" a large-scale industry producing everything from cell-phones to video games; given the broad nature of this industry, it was necessary to gather information from sources around the entire industry rather than focusing on a single segment (such as microprocessors). The reason for this is two-fold:

1. The technology sector in the United States shares a common stock index, the NASDAQ, which lists all technology related firms that are publicly traded. This means that, from an economic standpoint, the results of one sub-field within the industry will have an impact on the whole as shown in movements in the larger index. For this reason, a broad sample of the technology sector was sampled so that adequate data was available to answer assumptions and provide validation.
2. If an individual sub-sector of the technology industry had been extensively probed for information related to a study on hiring and training practices as pertaining to a recession, the data may not provide conclusive evidence for any sector except the one being sampled. The reason for this is the variation across the technology industry; the production of microprocessors for example require the use of Nano-technology, advanced computer modeling, a highly educated science-based workforce, and billions of dollars of manufacturing equipment. On the other hand, a programming company such as Adobe, who primarily work with programs

such as Photoshop, Acrobat, and Shockwave, all are application based services that require extensive coding, the writing of such code, and thorough testing; this work however does not require the extensive manufacturing that a microprocessor company would need, nor does it require a highly educated workforce with degrees in physics and things of this nature. Instead, coders and computer architects, as they are referred to, "speak" the language of a computer, and the skill set is entirely different. Managing people in these two very different types of business requires very different approaches, and the manner in which a recession would hit a software company vs. a hardware company is considerably broad.

For these reasons, the entire sector was sampled to show how a recession is handled across the entire field of technology services and industry, rather than an isolated area. This in turn will provide more conclusive evidence for readers of this information, allowing them to judge the industry as a whole, rather than an isolated sub-sector within the industry, which would potentially blow results out of proportion. This is said because as mentioned previously, one segment of the technology industry may take a considerable hit in the current market, while another is booming, and research on one or the other may skew results for future researchers looking for findings to build upon in the future. Furthermore, this approach gives more balance to the research, potentially limiting the chances of extremes within the industry, and thereby allowing a better, more comprehensive analysis than would be available if a single segment was analyzed.

**5. Time-Frame**

The time-frame for the data gathering segment of this study is short, though the events that have unfolded to create a situation where data could be collected readily have been going on since 2007. The importance here is that the recession has been ongoing for several years and prior to this period (2007-present) there was the complete economic opposite; financial markets were booming and the housing market couldn't seem to build fast enough. Jobs were plentiful and money was quick and easy to come by.

The advantage this study capitalizes on is the transition from one extreme to the other in such a short period of time; the transition from booming markets to financial meltdown (as it was initially dubbed in America) occurred rapidly over the span of only a few months. From there it seemed to become

progressively worse for the duration of 2008 and into 2009. The time-frame for the data being referenced therefore is several years, and the fact that the information is recent makes recollection by interviewees much more relevant and accurate as opposed to recalling events a decade prior.

Finally, the recession is still ongoing, and people are living it every day, regardless of job or lifestyle; it has impacted some more than others, but even the skeptics would agree that the recession has not passed yet. As this recession is still ongoing, the opinions of employees within companies are going to reflect this environment, if the recession had ended recently, the post-recession optimism that generally comes with a turnaround in the market or economy may skew results; some employees may have overly optimistic views (given their new feeling of job security and better working environment), and may see the recession as less harmful than it really was. Often hindsight is influenced by what condition the person recalling the events is currently in, so by conducting this research while the recession is still ongoing, it provides a better opportunity to capture the reality of the event, the true situation that the companies are experiencing, rather than a potentially biased hindsight study.

**6. Principle Variables**

One of the primary variables in this study is the manner in which business is conducted in the United States. This variable implies cultural expectations and assumptions that are not available for quantitative analysis; that is, there are many cultural norms and myths that go along with any country, and the United States is no exception, in fact it is quite unique. Because of the level of diversification within the United States, it becomes even harder than in other countries to pin down certain cultural characteristics and attribute them in a meaningful way to the outcome of a study.

Culture in the United States is a melting-pot of different ideals and ideologies; there are those that were raised on the "consumer culture" that many attribute to the American way of life, while others, perhaps those who immigrated recently or within the last generation, may not adhere to this way of life, but instead continue to save and spend frugally, as might have been required in their previous culture.

As this variable is an unknown, and may slide from one side to the other, I will judge that the larger majority of the American culture is based off the "consumer culture" that was mentioned before. This implies that the average American will spend most of their disposable income on non-essentials, i.e. electronics, fashionable clothes and other items, and items that are not required for survival, rather than

saving. This is not to say that all income goes to this, but rather the part dubbed disposable income, which consists of the money available after basic necessities (rent, utilities, food, etc.) are purchased. Once these needs are met, the money remaining becomes disposable, and is an excess of what they need to survive on a basic level. From this point, money may be saved or spent, and using the findings in the articles referenced earlier in regards to American savings habits, it seems apparent that Americans tend to do the latter more than the former.

Another variable that contributes to the study is the outlook for recovery; this means the time-frame which the recession is expected to end and a recovery begins. Unfortunately, predicting the end of the recession is a guessing game that analysts play using models and statistics that are largely theoretical, and in turn, the best predictions are nothing more than mildly educated guesswork. The reason this is a variable in this particular study is the fact that consumer spending is what drives the technology sector; with the high costs of many of the projects that are undertaken in the technology industry, extensive R&D, project generation and completion, and new product development and marketing cannot continue in full force without significant monetary inflow.

How does this affect technology companies? While initially when the recession hit, there may not have been as much concern for finances, as many of the larger technology companies have significant stores of cash available to finance new projects at any given time, the lingering recession may be dwindling these finances away, leading to changes in operating procedures. Innovation costs money in a capitalistic marketplace, and if consumers have less to spend, they will cut out non-essentials to cover their basic needs as mentioned before (utilities, rent, food, etc.). Most technology related products, while useful in daily life, could either be considered non-essential or interchangeable. Launching a new cell-phone every year may be profitable for a company and fashionable for a consumer, but if budgets are lacking, a consumer may opt to continue using their previous phone for longer periods of time than they had previously, because with the exception of fashion and convenience features, the phone does little else that an older model is supposed to do (make calls).

Because the recovery outlook is often disputed, and may had predicted the recession would already be behind us in the year 2011, companies in every sector, but particularly those in the technology sector, may be less likely to dip into new funding and take chances on new products. As such, hiring may not take place for the reasons mentioned in the initial idea of this paper, and training may not be utilized to its fullest, as new developments and product launches may be scrapped or postponed, leaving less need for enhancing employee potential and skills.

## Part III: Theoretical Framework:

### 1. Related Literature

Before beginning this research paper, I compiled an extensive list of case studies and articles pertaining to recessions and recession based economics; during my time I found only one paper that touched directly with recession based training, but it was in India, where business practices are quite different. Large amounts of the literature being used as background knowledge for this paper consist of recession based economic views, job markets for new graduates, the benefits of training practices, training budgets during recessions, and other related topics. The articles were disseminated, and a smaller list was obtained from the original group. These remaining papers and books offer research similar to mine, but on a more generalized level; the technology industry, to my knowledge, has never been directly reviewed in respect to recession based economic factors. Hiring and training articles have been included to look at both the positives and negatives associated with these, and recession-related documents provide a look at studies that were conducted during similar economic conditions.

Continuing on, the idea of economics as a management tool is something that is generally agreed to be a good thing, but has always been considered a different field entirely; economists tend to be stereotyped as number crunchers while managers are more people oriented. This however is not true in my opinion, and I believe a firm understanding of economics can contribute greatly to a manager's repertoire of tools for handling situations. A brief outline of both the economic principles formed by Keynes (Keynesian economics) and trickle-down economics are reviewed. These two were selected for distinct reasons. First, Keynesian economics has a very logical approach to how to maintain GDP growth and low levels of unemployment; this field of economics is huge, but for the purpose of this paper only a brief recap will be given to provide background information. The reason for using this as a theory is that Keynesian economics, from the point of view of a manager of a large organization, can provide insight into ways to boost their own economic potential by understanding indicators within the economy. Methods and ideas used by Keynes in his studies provide new and insightful ways to see a situation from the view of a manager.

The second theory that will be addressed is trickle-down economics, a policy that has been used extensively as a monetary policy tool, yet has not proven itself to be very effective in its use; that being

said, it is still the tool being used today to handle the recession, and may be partly to blame for the extent of the recession. This method, from the view of a manager, provides warning signals to be wary of, and allows managers to perceive the misconceptions within this theory and avoid being duped by them. By presenting this theory, management can watch for indicators of failed policy, and not follow misguided economic advice, potentially saving the company large sums of money and time; a brief review of the literature being used as supplements to this research paper follow below.

*Millennial Generation*

The first paper I will talk about was written by Hauw and De Vos (2010), and speaks about the career expectations of the millennial generation, those born between 1980 and 2000. The reason for using this paper for background literature is the speed of which technology sectors move; technology often outpaces many other industries in relation to innovation, and there is often a disconnection between older generations and newer technology. I have witnessed this myself as younger individuals seem more adept to the latest technology trends and techniques, things I find completely mind boggling, although I consider myself rather tech-savvy. As such, the millennial generation will be a significant part of the workforce within the technology sector. The Millennial generation, of which I am a part of, was discussed in this paper from a psychological perspective; what they expect out of their work, the conditions and psychological contracts they anticipate in the workplace, and their levels of optimism during a recession.

Hauw and De Vos (2010) laid out several characteristics of Millennials in their study relating to their expectations in the workplace. One of the characteristics that pertain to my study was the fact that "Millennials have high expectations regarding training and development in organizations" (pp. 294). Furthermore, they go on to quote Sturges et al. (2002) and Loughlin and Barling (2001) when they continue, "Millennials highly value mentoring and training within organizations because it will allow them to continuously develop new skills and remain attractive on the labor market" (pp. 294). Another meaningful measure that the Millennial generation takes into consideration at the workplace is job security; although "they have low expectations regarding job security, they still highly value it" (pp. 294). These two traits are particularly important in a recession, while also especially in the technology sector; Millennials expect, and will likely need training and job security in order to remain productive at the workplace, and when these two values are threatened, efficiency and production may suffer as a result.

The findings of the article by Hauw and De Vos (2010) documented that "No association was found between graduation year and expectations regarding job content, career development, training, financial rewards, and job security" (pp. 298), which substantiates the concerns of this article that training and job security remain important for Millennial employees regardless of economic conditions. As such, determining whether technology companies have been able to continue training and whether they have hired throughout the recession or laid off their workers is an increasingly important topic of consideration as time goes on and more Millennials join the workforce. Regardless of economic conditions, they desire job security and on-site training at the workplace, regardless of the reduced optimism they may feel that these desires will be met in a recession.

Furthermore, the ability for employers to fulfill the needs of their employees creates a psychological bond between the employer and the employee that encourages stronger work ethics and practices. This *psychological contract* as it is called in Newell et al. (2009) mentioned that "knowledge workers become committed and motivated in return for their employer's ability to meet their expectations" (pp 137) and goes on to state that "workers do not respond to their pay packet in isolation from the kind of work which they get to do, or the career opportunities which their employer provides them. They look at the employment relationship as a whole…if their employer succeeds in meeting the full range of their expectations, they are much more likely to be motivated and committed in their job" (Newell et al. 2009 pp. 137).

Another article relating to the implications the millennial generations attitudes have on the working sectors is the satirically titled *Hell hath no fury like a graduate waiting on tables* by Gordon Aitken (1994). The data collection method was to send 6,500 students that graduated or were about to graduate and enter the workforce questionnaires by mail to gauge their feelings about entering the workforce; at the time of the survey, 12% of these students were still unemployed! Aitken also noted that "a similar number were in employment which they considered to be a stop-gap measure or casual work" (1994 pp. 3), meaning that nearly 25% of recent graduates were either unemployed or working at meaningless work they did not consider to be a part of their true career path.

The reason I elect this article for inclusion into my thesis works is particularly related to manner in which these unemployment figures reflect this generation. As a recession begins to take hold, there are implications that it brings to the job market which Aitken (1994) put very well. He noted "there was clear evidence in the survey that employers had been able to "bid up" their requirements in the recession...some students have felt that the labor market currency of their qualifications has been

devalued by the recession" (pp. 4). Although this paper was written in 1994, the factor being discussed here is very relevant to today's current recession and more so for the millennial generation and their particular values which were discussed previously. As the unemployment numbers rise and more and more workers are out of jobs, the recent graduates, with little or no work experience, may be the first to be cut from new jobs, or in the event of them graduating during the recession, may not get jobs at all, with employers citing inexperience and lack of work experience.

The effect this may have on the technology sector is a variable, given that there are more available jobs in the technology marketplace then there are qualified workers in the United States, but that does not guarantee that jobs will remain open to previously qualified individuals. As Aitken noted, the job qualifications may suddenly become steeper during a recession as employers get to be more selective of their new hires given the higher level of skilled workers currently looking for jobs. If this is the case currently, then it implies that the technology sector will follow suit with the rest of the industries that are laying off workers and reducing training within their sectors. If however, the opposite is true, and the hiring requirements for technology related companies have not shifted with the change in the economy, then there is the potential for continued training within the workplace and layoffs may be less abundant given that new graduates will not be the first line of cuts to save expenses with inexperience cited as the main reason for such cuts.

*Training in the workplace*

"When the economic cycle moves into a downturn, employers cut training. When the economy improves, they tend to put any extra money into raising wages and to poach workers who have already been trained" (NATFHE and Youthaid 1993:20 cited in Felstead and Green 1994 pp. 199). And that is how Felstead and Green start their argument for training in recession periods, straight-forward and without a doubt demotivating for those hoping to see progress during the recession regarding training. They go on to note that "In a longer recession uncertainty and pessimism come to dominate expectations, so that employers will see less reason to keep employing workers whom there is little prospect of productive work...the benefits of training such workers are more questionable" (1994 pp. 202-203).

The findings of the study conducted by Felstead and Green is interesting in contrast to the negative portrayal given in the initial opening of the paper. The interviews they conducted to validate their initial

assumptions. Rather than finding that training tended to drop across the board, the surveys they conducted found that "Of the 157 responding firms, 43% claim to have increased their training activities, 27% report no change in their overall training commitment and 25% report cutbacks in training" (1994 pp. 205). The reason behind the increases in training in many of these firms was to cite a need to train to maintain competitiveness, which bodes well for the potential my own study, has at uncovering a positive training increase. The reason for this is that technology firms are inherently very competitive due to the speed at which innovation within this sector occurs. Being competitive is the most important factor for a technology firm, as outdated technology and practices are not very useful given the pace technology advances. It is paramount to strive to become the leader of each organizations respective industry, and the battles between firms can be rather intense. In this sense, it could be argued then that training should increase during the recession just as in any other economic period in order to pursue a competitive advantage over an organization's competitors.

A short article written for ITNOW in May 2010 noted the changes that training is undertaking in the IT sectors. In the IT fields, the article cites a change in training practice methods, rather than the collapse of training programs outright. The article speaks largely about the way in which training must compensate for the increase in competition that the market is seeing due to consolidation and increased competition for sales; training then it argues "will not die out, the roll of the instructor will not become redundant, but flexibility and adaption will be key" (ITNOW 2010 pp. 14). The article claims that training will not decrease, but instead "what will change is the type of training that's offered" (ITNOW 2010 pp. 15), which offers a positive outlook on the potential for training increases or at least consistent training within the companies being researched for this thesis.

A third article, potentially the closest one I could find in comparison to my own study, was an article published in Development and Learning in Organizations that looked at whether cutting training in the recession was a "good idea" as they put it. The article focused on the IT sectors in India, which while offering similarities to my study, cannot be considered identical given the cultural differences in the countries in question, while also only focusing on the IT industry, a large segment of the technology sector, but not by any means comprehensive of the whole industry. Furthermore, as India becomes an outsource region of choice for the United States and other post-industrial countries, India may see an influx of jobs while cuts in the United States increase in my opinion. This report never the less gives an interesting look into how training can offer up benefits during a recession and the threats of cutting training.

Arguably, this is the most optimistic paper that I have come across in relation to how companies should handle recessions and the human elements within the organization. They name many positive aspects of training that can be utilized while a company is dealing with a recession driven economy. M.S. Rao argues that "rather than seeing training budgets as a prime source for cost cuts, (Indian) organizations would be better served to maintain if not increase their allocation. Corporate training enhances employees' confidence and commitment to their organization. This energy in turn creates increased revenues for the employer, thus potentially outsmarting the competition" (Rao 2009 pp. 8). He concludes that "Continuous training helps in upgrading and updating the skills and abilities of employees regularly thereby enhancing employee effectiveness and efficiency" (Rao 2009 pp. 9). These are very accurate conclusions, as training is in fact an idea way for employers to get a leg-in on their competition while also nurturing employee satisfaction at the job. To relate this to the millennial generation that was spoken of earlier, this kind of training is richly appreciated by this group of individuals, and as such, employers can expect increased productivity and lower attrition at the workplace when Millennials are given in-house training opportunities.

*Threats to downsizing*

Noted in Palmer et al. (2009), companies sometimes are faced with the possibility of downsizing their workforce. When this happens, due to changes in technology or in their competitive environment, the damage done when a downsizing occurs may be just as threatening as the damage incurred by the economic change. Issues with Employee retention, where there is "a loss of important and skilled employees" is a factor because "when they see their peers leaving, they (employees) begin to doubt their future at the company. Without these valued members of the organization, the productivity of the company may be reduced" (pp 100). Further damage can be caused by a situation called Survivor syndrome, where "Employees that remain with the organization following a downsizing may suffer survivor syndrome, where they question why the change occurred, feel guilty that they remain while some of their work colleagues are unemployed, and may suffer from low morale wondering whether they are likely to lose their job in future downsizings" (Palmer et al. 2009 pp. 101). Finally, the issue of Due diligence presents itself when a downsizing occurs, as "Unplanned and nonselective downsizing can lead to issues for companies such as whether the downsizing that occurred was really necessary and why it was that some people were retained and others let go. Lack of attention can lead to further deterioration in employer-employee relationships following downsizings" (Palmer et al. 2009 pp. 101).

With these threats readily available to a manager for consideration, a close examination of the business, its market, and the direction of the company should be reviewed before making such changes.

## 2. Theoretical Underpinnings

This section, albeit similar to the one before, has a different manner in which the data is often presented, and as such required a separate section to distinguish between the two. Where the former (related literature) relied on previous studies that had been undertaken and views that had been researched on the topics of recessions, hiring, and training, this area explains the basis behind the nature of the events within the economy that create these situations. Rather than look at them as one unified topic, literature is the by-product of the following theories, and as such the following section enhances the understanding of why the literary examples come to the conclusions that they do.

The theory behind my study rests on the background of two primary theories in economics, Keynesian economics theory, Trickle-down (otherwise known as Supply-side) economics, as well as the concepts of consumer confidence, and purchasing power of currencies. Understanding these different theories and methods brings a better comprehension as to why the recession occurred, as well as the how and why regarding the actions of companies and the government in America and their economic responses. On one hand Keynesian economics point to rational theories grounded on employment opportunities and balanced monetary management, while Trickle-down economics, largely used in the United States as a fiscal tool, are grounded in hypothetical success and have been proven (as will be shown) to provide no economic value.

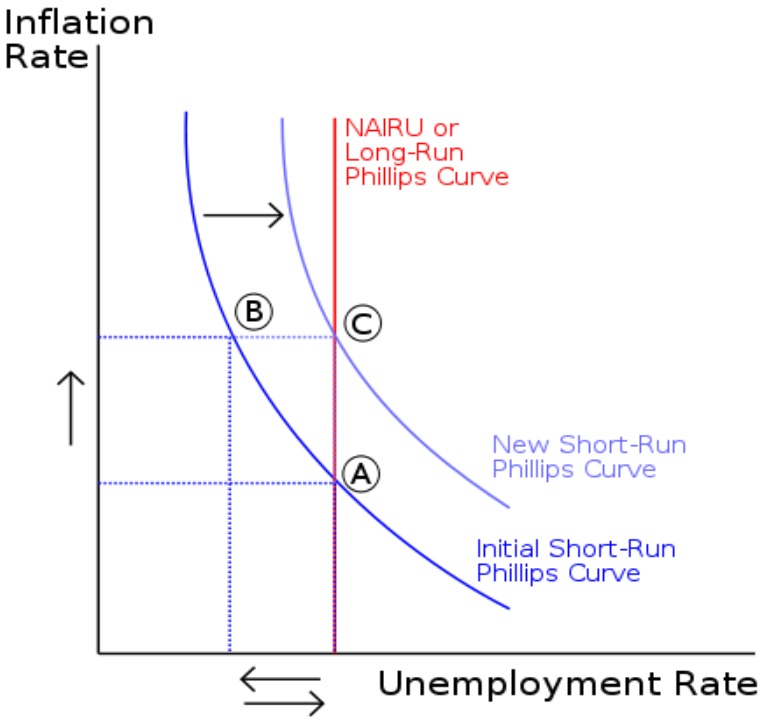
### *Keynesian Economics*

Keynesian Economics Theory is a theory based on understanding total spending within the economy and how it influences output, and in some cases inflation as well. The theory looks more towards the long-run view of things, taking variations in the short-term as just that, variations. This volatility in the short-term according to Keynesians does not infer what happens in the long-run; that is to say, we live in the short-run and cannot anticipate the long-run based on what data we gather or see now. The theory has six principles which I will discuss briefly.

The first principle of Keynesian Economics is that "aggregate demand is influenced by a host of

economic decisions – both public and private – and sometimes behaves erratically" (Econ 2011). Aggregate demand is the Keynesian way of saying total spending in the economy, so essentially this first principle is stating that total spending can be volatile and erratic because of how it is affected by spending. Changes in monetary or fiscal policies within the economy can cause shifts in total spending, something Keynesians did not initially believe.

The second principle states that "Changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run effect on real output and employment, not on prices" (Econ 2011). This is a difficult concept to explain in Layman's terms, but essentially any changes in spending effect short-term output and employment as it suggests, but pricing should remain unaffected. This is because Keynesians believe that prices are for the most part at least partially rigid, that is, they do not fluctuate quickly, but instead keep their relative cost. Therefore, although output and employment rise, price levels, at least in the short-term are constant or relatively constant. The idea is better expressed by the Phillips Curve, a diagram explaining this principle. Phillips won the 2006 Nobel Prize in Economics for his work on this idea.




*Source Wiki

The curve depicts changes in unemployment and inflation and how they affect one another; as noted by

the slope of the curve, inflation (price) changes slower as employment increases (unemployment decreases). This model is meant to depict the changes that occur when spending changes; as Keynesians and their second principle speak of, unemployment and output are affected the most, and this is an example.

The third principle states that "Prices, and especially wages, respond slowly to changes in supply and demand, resulting in periodic shortages and surpluses, especially of labor" (Econ 2011). This principle deals with the idea of economic revival ideas that the United States government put into place following the acceptance that there was a recession in place. Essentially this principle states that supply and demand, the two governing factors in economics are not responsible for immediate impacts in price changes. The idea behind this principle is that prices and the wages of employees are somewhat sticky, that is, they do not necessarily change immediately when other variables change, but instead tend to *stick* to the point they are currently in, making it difficult to pull them up or down. As such, economic policy changes such as monetary or fiscal policies that alter government spending will not immediately result in improvements in wages or reductions in price, but instead should be used to provide calculable measures to combat inflation and wage stagnation.

The forth principle of Keynesian Economics states that "Keynesians do not think the typical level of unemployment is idea – partly because unemployment is subject to the caprice of aggregate demand, and partly because they believe that prices adjust only gradually" (Econ 2011). I particularly like the definition supplied in the economics library online, as it gives a single word to describe the term recession, one that I've never heard used but specifically applies to many situations. They call recessions and depressions *economic maladies,* malady being a term to describe an "undesirable or disordered condition" (Dictionary 2011). I could not think of a better way to put this; recessions are not a guaranteed justification that everything under the sun is going down the tube, to use a blunt way to describe it. Instead, recessions can be seen as a disorder, a weakness that plagues the system, just like the flu is to the human body; it does not mean that the body is weak or faltering; it simply implies bad timing coupled with improper planning. The same could be claimed for a recession; recessions are often the product of bad planning and ill-fated timing, much like the current recession. As such, and as the forth principle in Keynesian Economics implies, the huge increase in unemployment figures in the United States since the recession began is an impractical figure that was created by organizations that assumed the recession was due to direct economic weaknesses, rather than symptoms of a ill-treated disorder, much like the flu is to the human body. The best logic therefore would be to treat the illness rather than succumb to the symptoms (in the case of economics, firing and laying off employees along

with reductions in monetary spending).

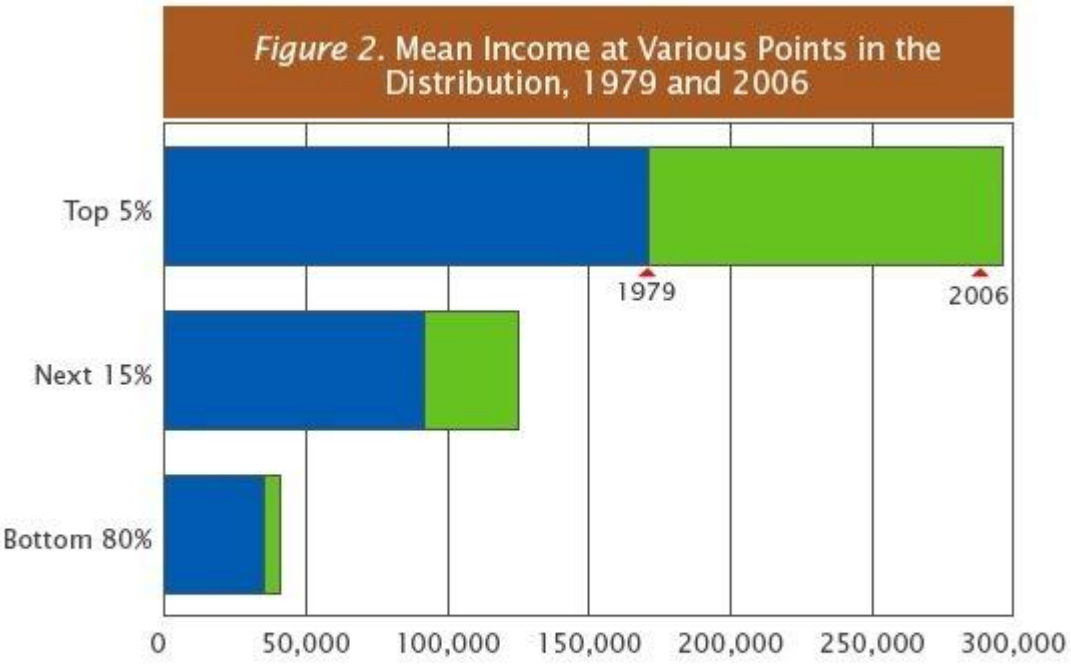
Principle five of Keynesian Economics is debated within the Keynesian group but never the less encourages "activist stabilization policy to reduce the amplitude of the business cycle, which they rank among the most important of all economic problems" (Econ 2011). This goes back to the older economic idea of *fine-tuning*, a process that involved "adjusting government spending, taxes, and the money supply every few months to keep the economy at full employment" (Econ 2011). This is obviously not practical as Keynesians noted early on due to the lag that happens between when a problem is noticed and when a decision to correct that problem is made. However, there is the belief that monitoring these practices, spending, taxes and such and being aware of the lag that is associated with a change can still be a practical measure in assisting the economy. In a situation such as today where the unemployment is high and the value of the dollar relative to other currencies is the weakest it has been in many years, then proper policy changes can still be made regardless of the lag effect because the situation needs drastic change, not smaller fine-tuning adjustments.

The final principle of Keynesian Economics states that emphasis should be placed on "combating unemployment (rather) than conquering inflation" (Econ 2011). Keynesians believe that inflation is not as critical a factor in the long-term as unemployment is; rising inflation is deemed less important because a higher level of unemployment not only saps government funding (in the form of welfare, reduced income taxes, lower consumer spending) but also may provide a trigger for inflation. If unemployment is kept lower, than inflation is less of an issue as an increase in prices in the short-term will have little effect on employed workers.

*Trickle-down Economics*

One of the popular go-to economic fixes in nearly every presidency in the United States is tax cuts; everyone loves to hear the word tax-cut and the idea of a tax-increase is enough to make any politician think twice about their chances for re-election should they enact some sort of hike. This is unfortunate though because over the years tax-cuts have become such a mainstay of economics within the United States that they have lost their real meaning. Instead of being tools to correct economic conditions when needed, taxes have been turned into political tools to gain favor with certain interest groups. Furthermore, this style of economics has tangled with the Keynesian Economics theory in the ways in which they perceive economic growth to occur, so it is appropriate to address this theory because it is

used far too often (the bailouts of 2008 for example) though it has been proven time and time again to not work.



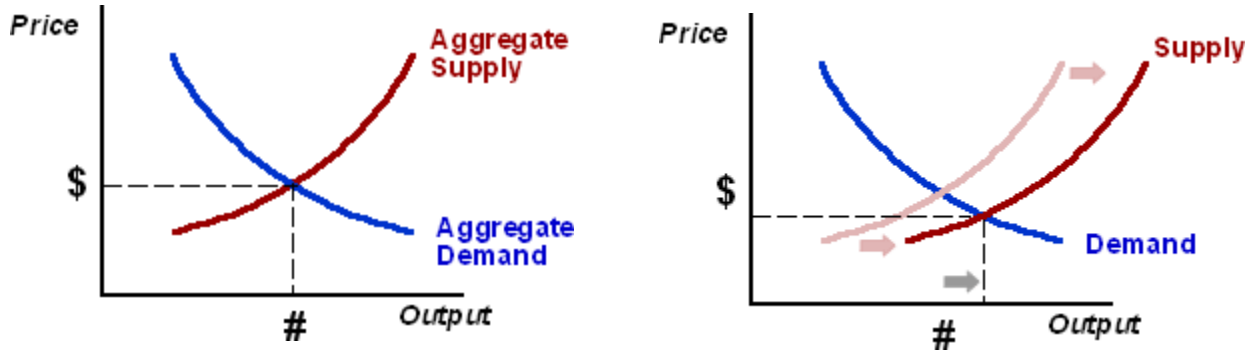

*Source:* Historical Income Tables, U.S. Bureau of the Census, Table H-2, available online at http://www.census.gov/hhes/www/income/histinc/h02ar.html; Table H-6, availible online at http:// www.census.gov/hhes/www/income/histinc/h06ar.html.

Trickle-down theory works like this: Taxes are cut for the wealthy and the investors because it is rationalized that it "provides incentives to save and invest and produce economic benefits that trickle down into the overall economy" (Investopedia 2011). As simple as this sounds, the grounding on which it has been based is largely theoretical and its benefits are questionable. From 1963 the taxes for the top income bracket in America have dropped from 91% to 35% as of 2003 (faireconomy 2003). If that sounds sketchy, then it is probably because it is; as a result of these reductions, the mean income within the United States has been considerably skewed.

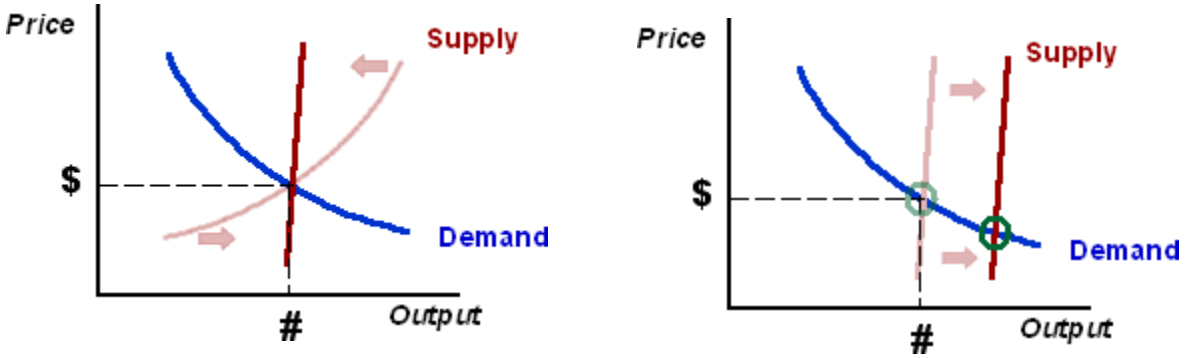
This graph represents the mean income changes over the last several decades, and as noted, there has been a dramatic shift in the wealth of this country, yet it is not going the way that trickle-down economics would predict. When the recession kicked off in late 2007 the first thing the government proposed was the bailout, a 800billion (called 700billion when they pushed it initially) US dollar fund that was intended to correct the recession by infusing the banks and larger companies with a proverbial truckload of money, and they would in turn spend that money in the economy, thus creating jobs again and fixing the recession; that didn't happen. Instead many of the companies that received bailout funds

began to buy out their competitors in an effort to consolidate their positions within the market while other companies were faltering.

The basic argument for this theory is that supply creates demand rather than the other way around; this idea is based upon the notion that if supply increases, inventories are increased which therefore causes pricing to fall, thus increasing demand. Rather than the traditional supply and demand principles (where supply has to shift to meet demand), they argue for a vertical supply curve which can only meet the demand curve when output is adjusted (see charts for example).




A typical supply/demand curve




*Modified Supply-side theory curve*. Note how only changes in supply can now alter the equilibrium point *Source Investopedia

Why was the bailout used? The logic again went to trickle-down theories that were graphed out and placed in news articles, but did it work or was it necessary? Not only did it not work, but it was not necessary; also, the bailout didn't stop at $750billion, but climbed to nearly $3trillion over the course of only a few years. Here's an idea of what happened:

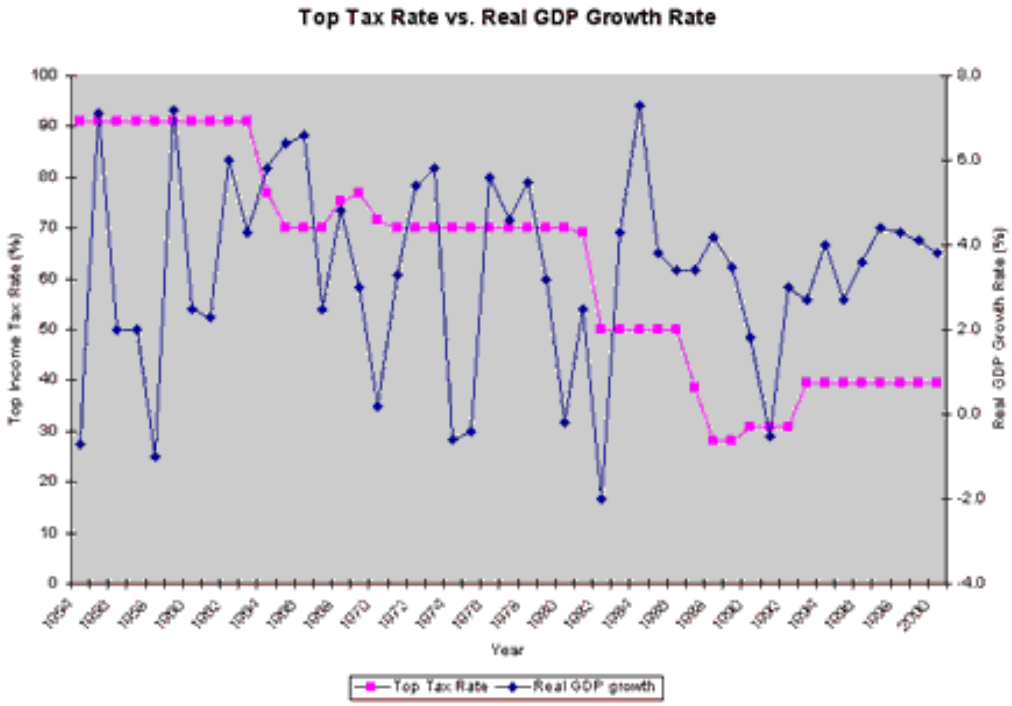
We learned yesterday that the size of the bailout just tripled, from $750b to $3T. Here is the cost

structure:

- $250 billion of capital into banks;
- Guarantee $1.5 trillion in new senior debt issued by banks;
- Insure $500 billion in deposits in noninterest-bearing accounts (primarily businesses accts).

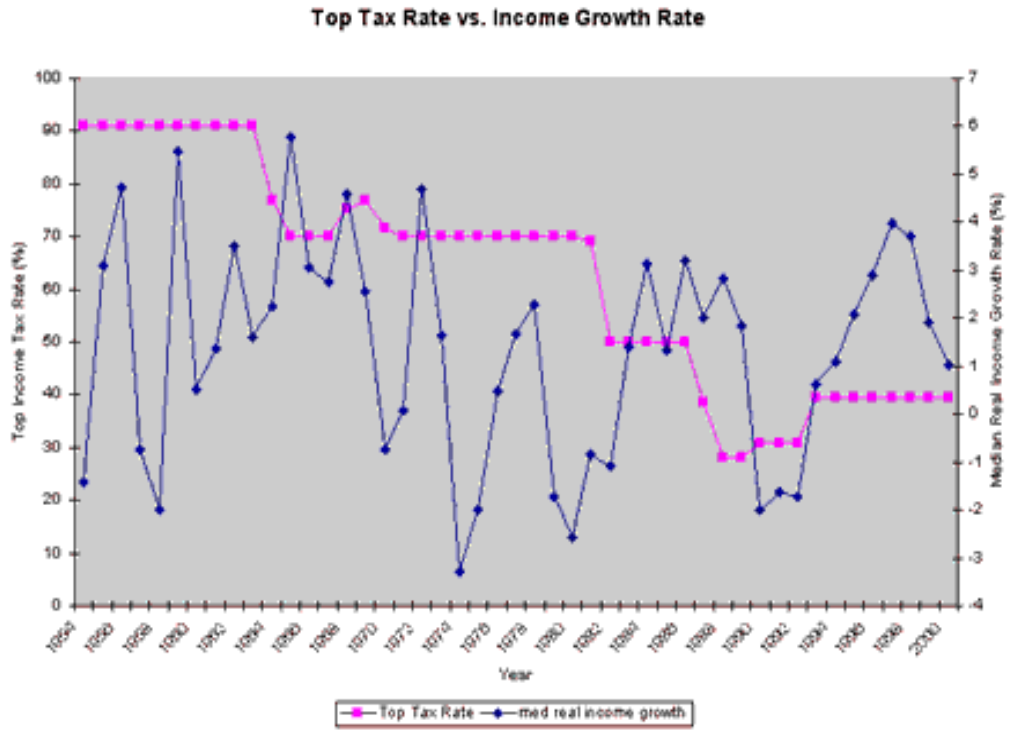
*Source dailykos

Now, was it necessary to bailout Wall Street to keep spending within the economy constant and to improve investment? Judging from previous trickle-down attempts such as those started in the Reagan era, it's likely this will have little positive effect on the economy. Now there is still the argument that reducing tax-rates for the wealthy has a positive impact on the economy, to which a review of such rates has been calculated.



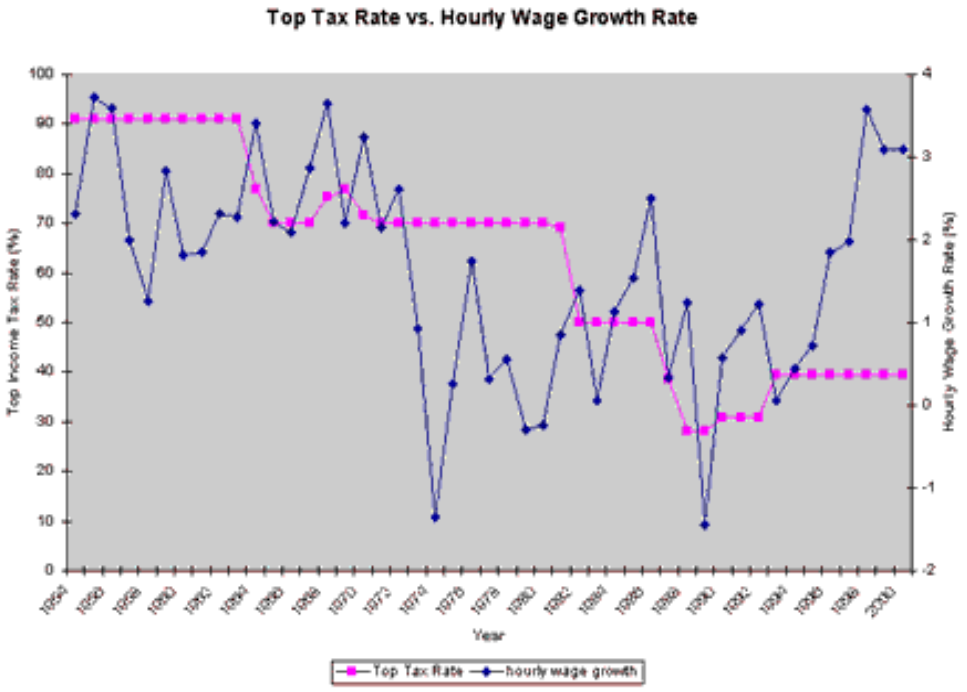

*Source Fair Economy

As noted, reductions in tax rates have absolutely no impact on GDP or economic growth whatsoever. So then theorists of the trickle-down economics theory may suggest that reducing taxes for the wealthy will increase the income growth rate of Americans.




*Source Fair Economy

Again, absolutely no correlation between reductions in taxes and income growth rates for Americans. This seems to be going in the same direction as the previous chart on GDP, there is no connection, yet this is the monetary policy of choice in America when the economy gets into trouble. How about hourly wages? Job Creation? I do not need to argue the point for these as they are the same as the others.

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*Source Fair Economy

In summary trickle-down economics do not work, and I reviewed them here to provide a quick review of why they do not work; yet this is so often used as a tool for correcting the economy. If this kind of policy is used to help with recessions, it is not surprising to see then that job growth does not increase and unemployed individuals are having a hard time getting back into the workforce. Keynesian economics makes much more sense in this regard.

## Part IV: Contextual Information

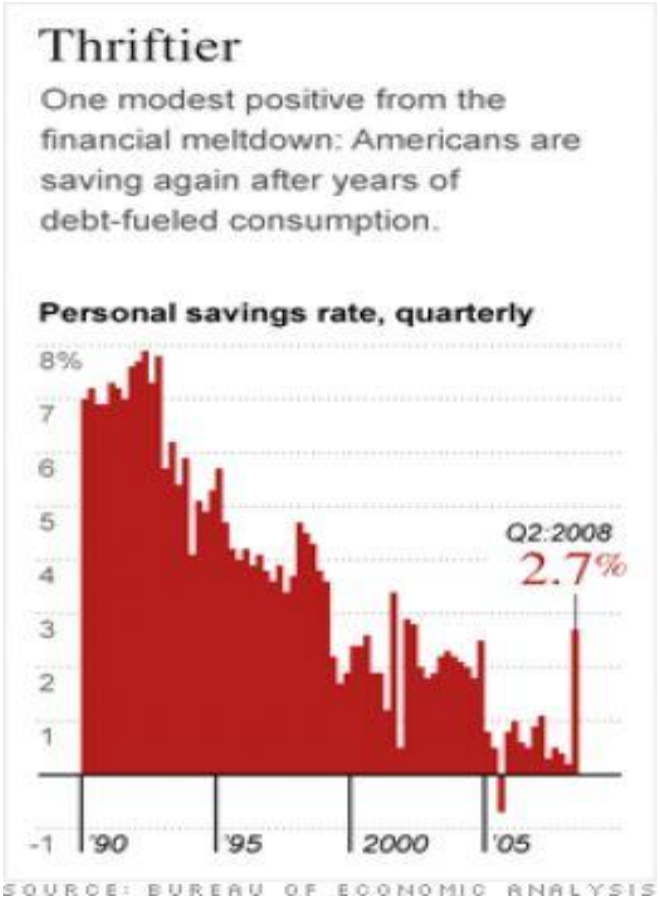
This section includes relevant information pertaining to the situation of both the economy in the United States during this time as well as the status of consumers. The information here provides a context to which the paper is being written; without an understanding of what makes the recession function in the way that it does, it would be impossible to understand the implications of the research. Below the topics of savings, consumer spending and psychological preconceptions will be discussed, all of which are influential to the duration, extent, and impact of a recession.

A look at the spending habits of American consumers sheds a little light into why this recession hit so hard and so fast; for several years, the national savings rate for Americans "was actually negative, meaning that people were spending more than they earned and saving nothing" (HUB 2009). Since the recession, Americans have started saving again, though at a significantly lower level than many other countries, currently moving up to nearly three percent, which, while an improvement, still leaves much to be desired. In countries like China, the average savings are 50% of income, while in Japan savings are said to top 20% of income (HUB 2009), in Sweden savings are roughly 8% while the average across the European Union is over 20% of income. As one author noted, the only positive of the recession it seems is that it has finally jolted Americans to begin saving again, though it may be too little too late, as the damage has already been done, and this reaction may be one of necessity and fear of a relapse rather than a long-term choice, but only time will tell.

American save significantly less than their foreign counterparts, and as such, when the recession hit and companies began firing people, they had little to fall back on to weather the storm, and as such, many lost houses due to foreclosure, were unable to continue purchasing in ways that economic forecasts predicted, and were forced to go on unemployment and welfare, considerably influencing the amount of money governments, both federal and at the state level, had to spend to alleviate the problems associated with the recession.

Further stress is placed on Americans due to the level of debt they have been living with and piling on for the years prior to the recession. Not only was net savings actually negative for several years, but debt levels were rising that whole time. American consumption outpaced the income of many people as they became accustomed to a bullish economy and easy credit access; as such, Americans became

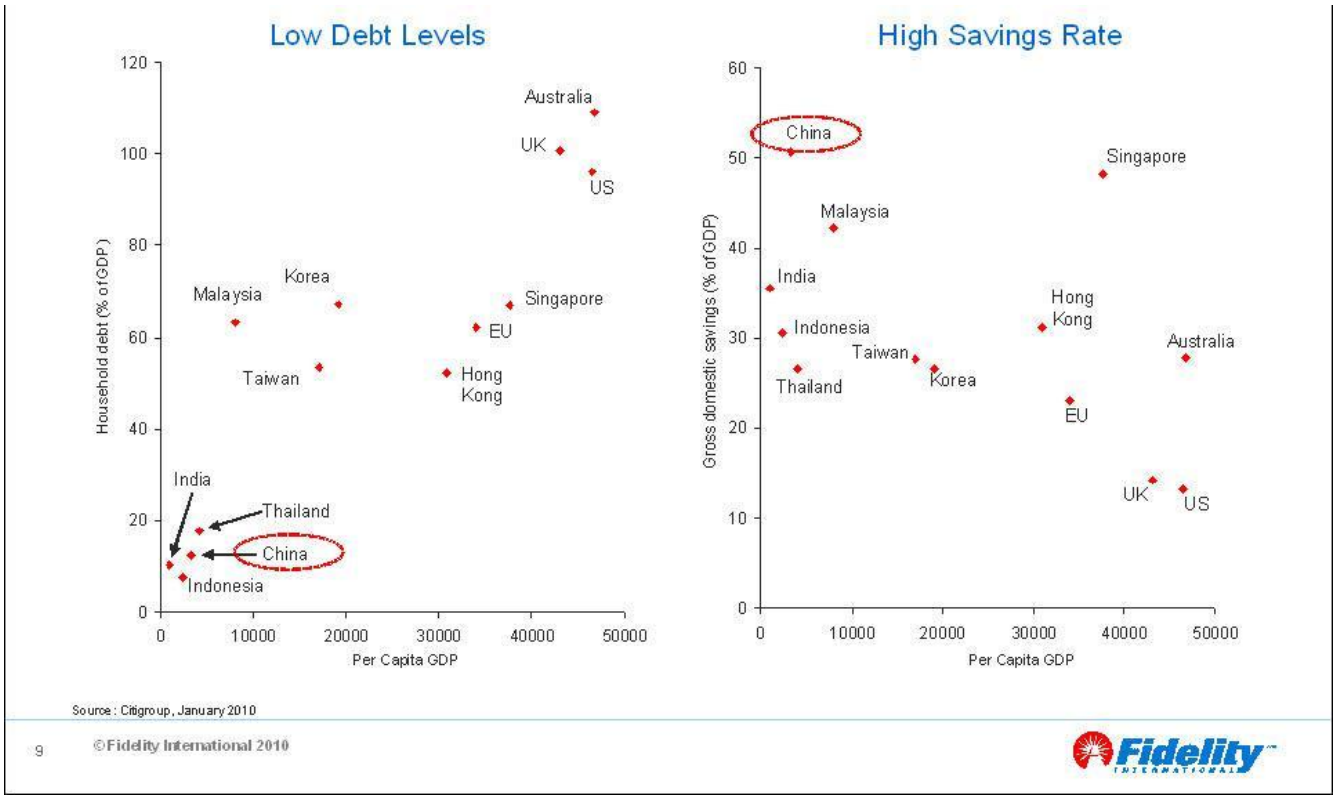
familiar with credit cards, extensive loans, and other debt burdening options to fuel their spending habits, never considering that the economy might make a turn for the worst. Debt levels in America according to Fidelity International placed US debt levels Per Capita GDP at nearly 100%, meaning that Americans owed nearly as much as they made coming into the recession. Not many other countries can claim such high debt burdens, with the average across the European Union being roughly 60% and countries like China barely above 10%. The images below paint an unfortunately clear picture of exactly why the recession hit consumers as hard as it did.




*Source Hubpages

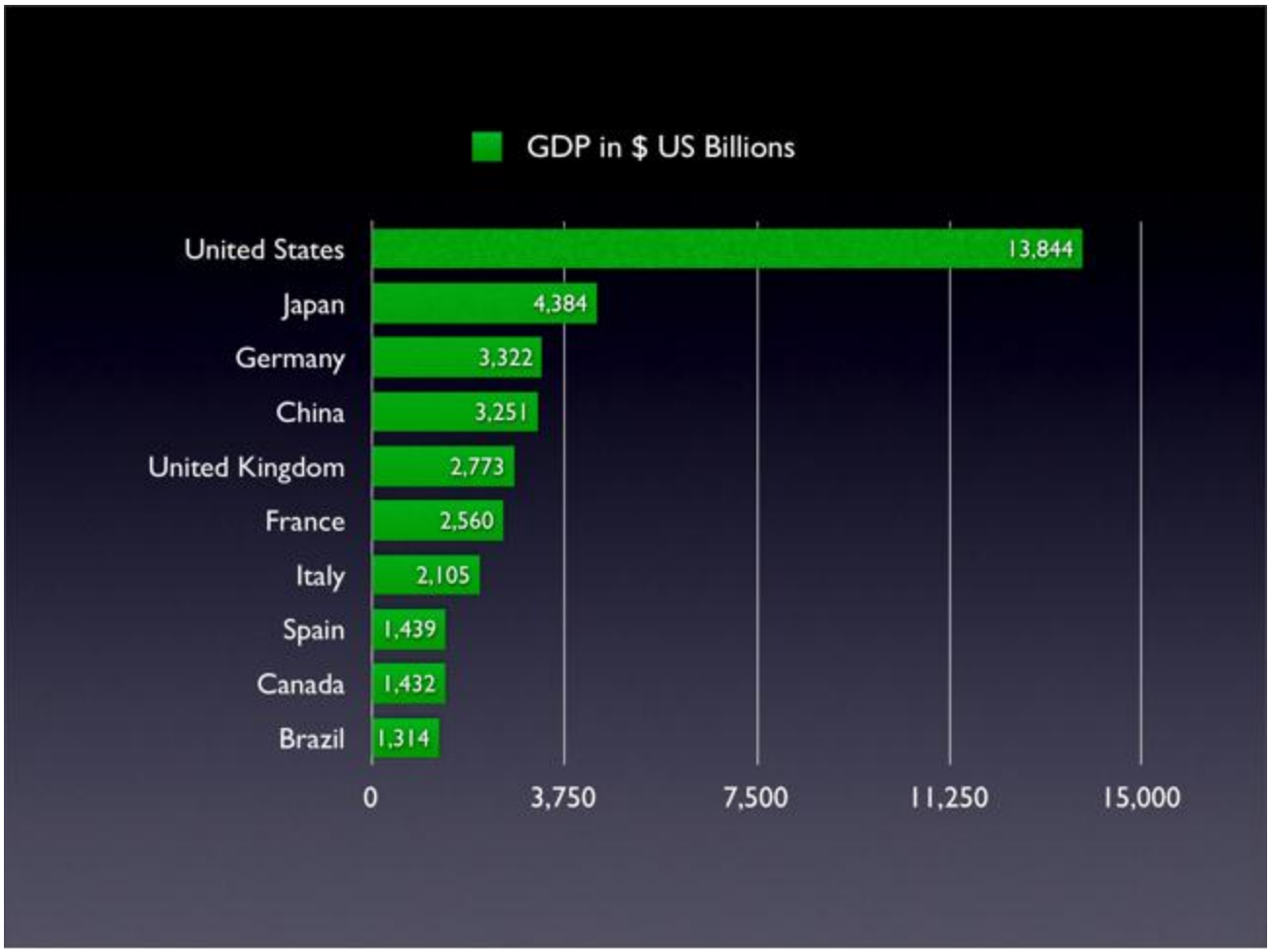

*Source Wisebread

Debt has taken an all-time high in America, while savings have plummeted. This type of consumerism has left the recovery in America at a disadvantage, with drops in jobs immediately causing a drop in spending, unlike in other countries where spending might have been able to continue due to larger savings which may alleviate some of the initial strain in losing a job and finding a new one. Without this buffer, Americans could not continue putting money into the economy, causing slowing sales and further cuts in joblessness, essentially compounding the situation. It worked as a cycle, as companies began to shed jobs, those lost workers in turn multiplied the number of jobs that were lost as a result in other sectors considerably.



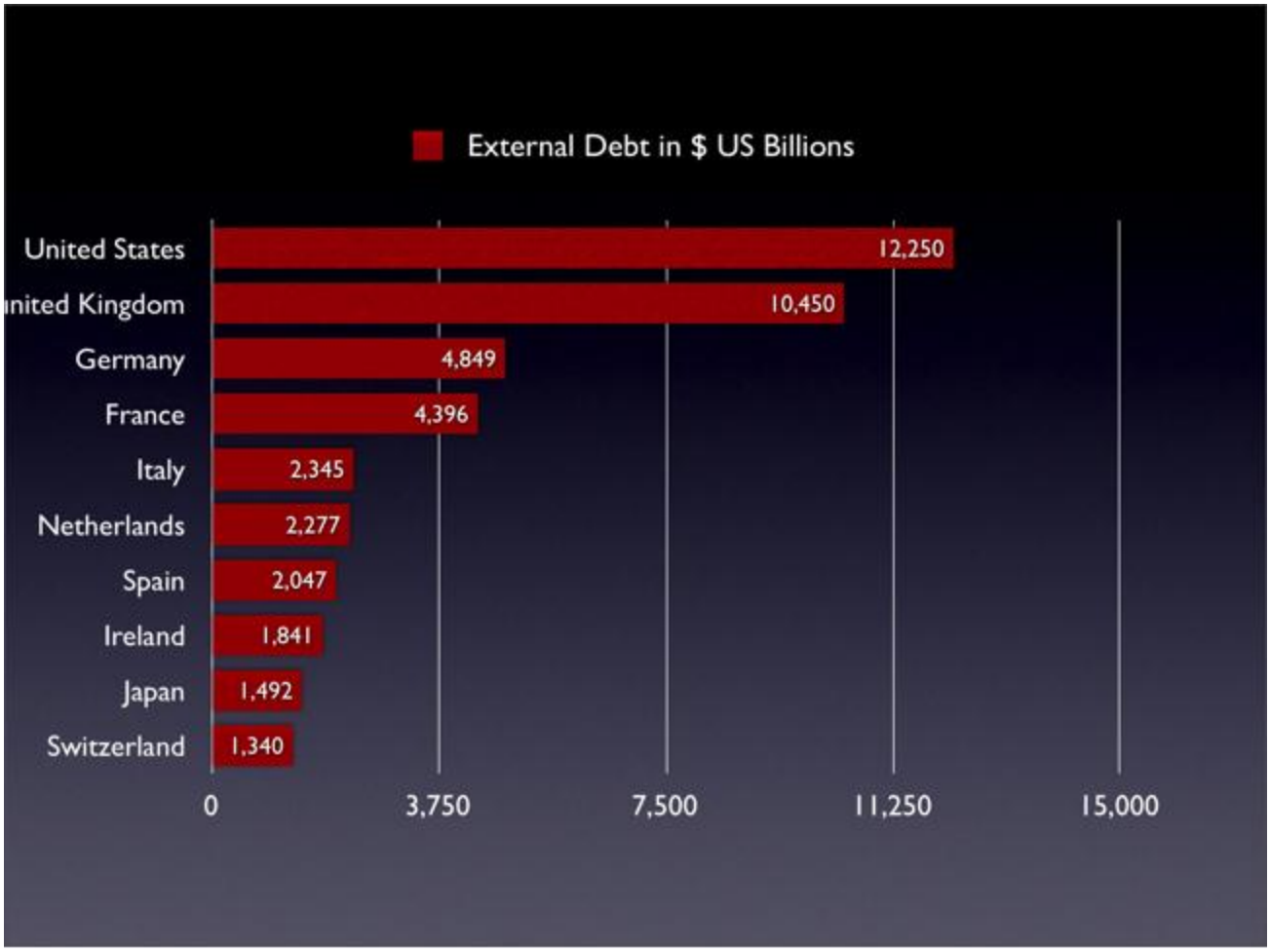

*Source Fidelity

Another indicator of how the economy is doing is the debt to income ratio in America. This is another key marker that lets analysts track spending habits and anticipate problems that may be forthcoming in an economy. Unfortunately for Americans, these indicators were ignored for years as a consumption-based mindset and consumerism trumped rational thinking and spending habits. As Spending is generally related to GDP, it is no surprise to see that the countries that spend the most are also the highest on the 10 wealthiest nations chart published by the International Monetary Fund.




*Source Creditloan

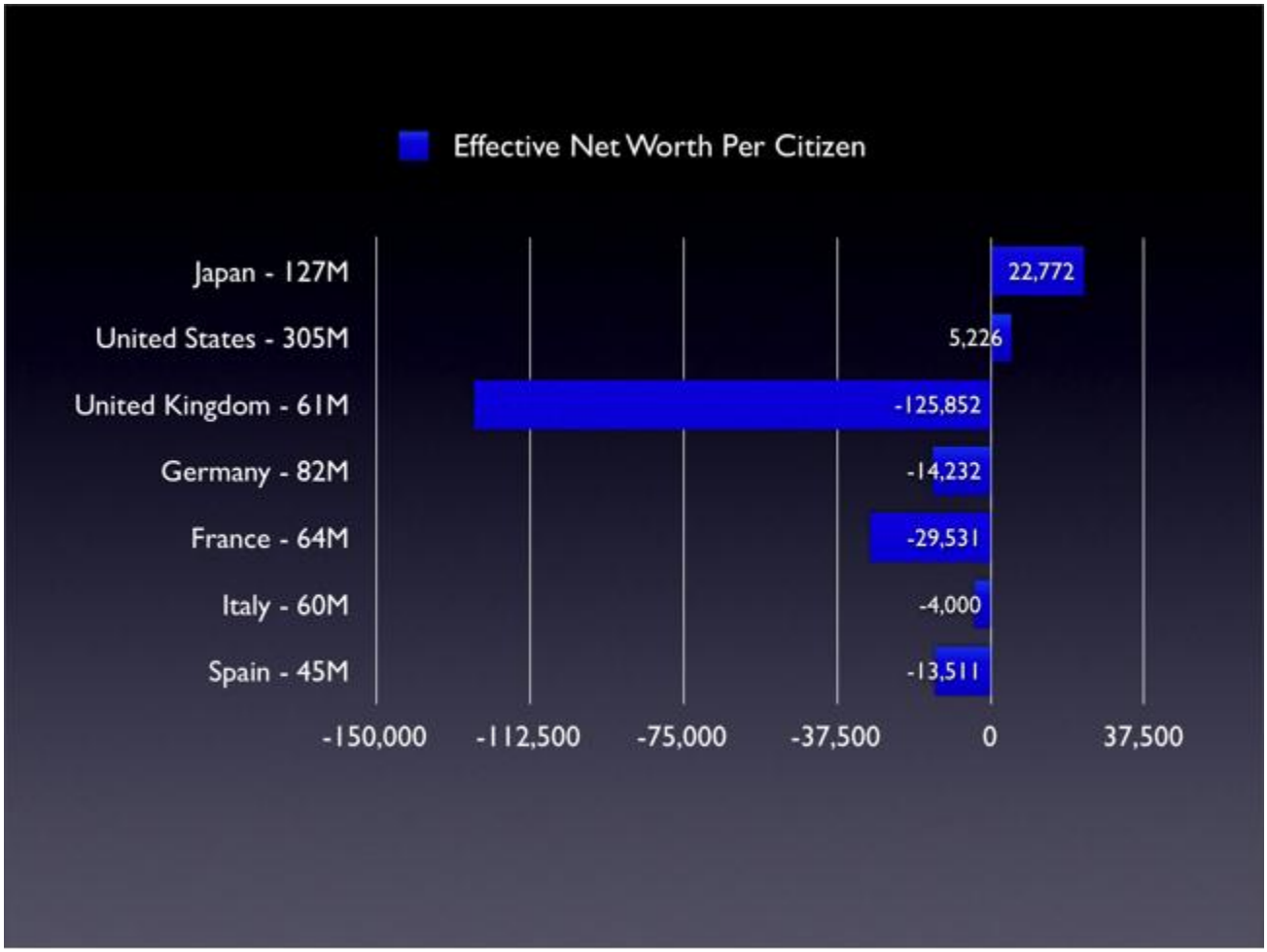
Along with being the most wealthy nation in terms of GDP, the United States also holds the crown for top debtor nation (see chart below), meaning that they have more debt than any other country. The argument here is that this excessive debt was fueled by "widespread availability of affordable credit" which was further augmented by the theory that "wealthy countries have grown accustomed to being wealthy and they are enthralled by consumerism...this high level of debt could be a result of a culture that is used to and willing to buy now, and pay later...even if it means with interest" (Credit 2010)



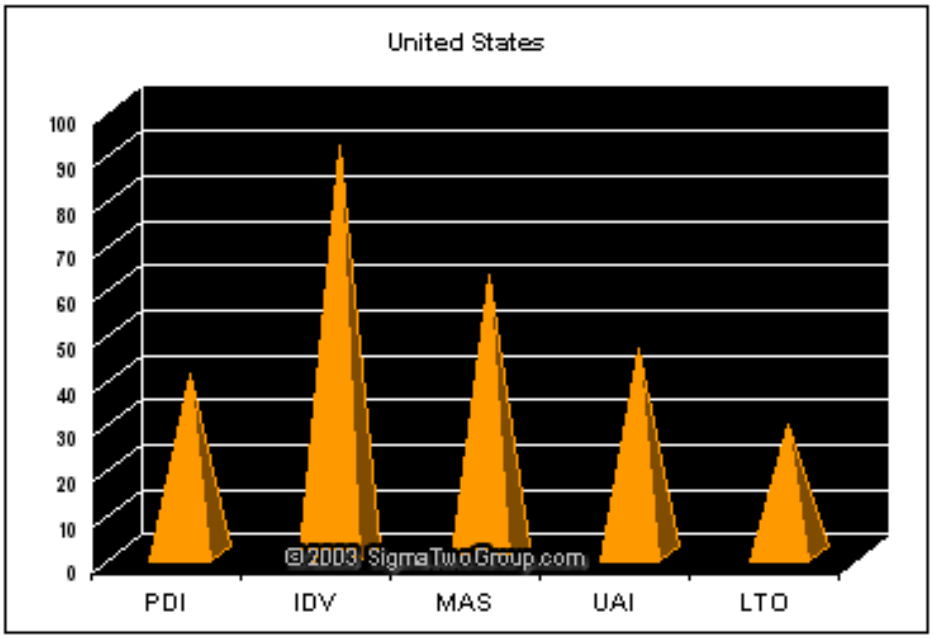

*Source Creditloan

The final statistical to look at when considering how deeply this recession has impacted Americans is to look at the *Effective Net Worth Per Citizen*, which essentially is how much value each individual has in a country based on both the GDP and population of that country. This figure will give an idea of how wealthy the individuals are (in US dollars), to provide insight into just why Americans took the recession so hard. Though the chart below does show that Americans fare better than many European counterparts when it comes to Net Worth Per Citizen, the cost of living must also be considered, along with the fact that figures are represented in US dollar terms, giving the dollar a slight edge due to transaction exposure in the market. The numbers for the United States show that the average American is worth a measly $5,226, meaning that the net worth of the average individual in America (how much value they have after removing all their debt) is not even high enough to buy the cheapest car on the market (to give some perspective), while in Japan, the Net Worth Per Citizen is a much more comfortable $22,772. This shows a much more balanced society that is reflected by the topics earlier of American savings when compared to other countries such as Japan. The effect here is that the average

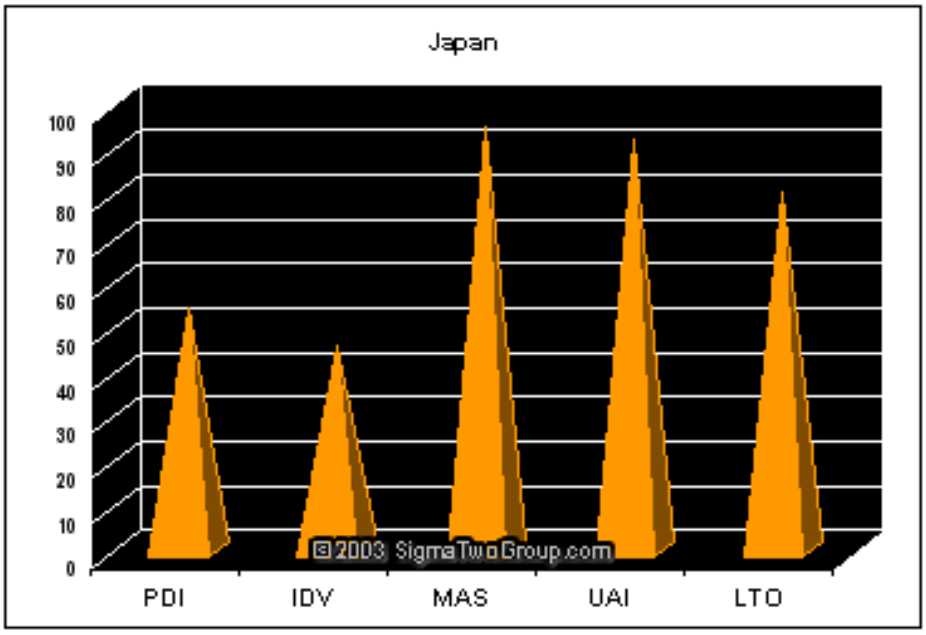
citizen in America has no value, when all the debt is taken away; they essentially consume and purchase without any inkling of concern for the future. This is reflected in both their savings habits, spending habits, and the Hofstede models that place Americans at the very bottom of the Long-term orientation lists of all the countries studied. This long-term orientation depicts how well individuals plan for future events; in the case of Americans, there is very little, if any, concern or planning for future planning.




*Source Creditloan




*Source Hofstede




*Source Hofstede

In 2008 and even through 2009, with economic forecasts painting a grim picture regarding the speed of the turnaround, and uncertainty in consumer spending and confidence, measures were being taken by companies to stay "in the black" so to speak. As unemployment figures rise, the implication is that

companies are cutting back on staff and spending in order to stay financially viable. Unfortunately, and unemployed workforce can spend very little, in turn decreasing the speed at which economic recovery is possible.

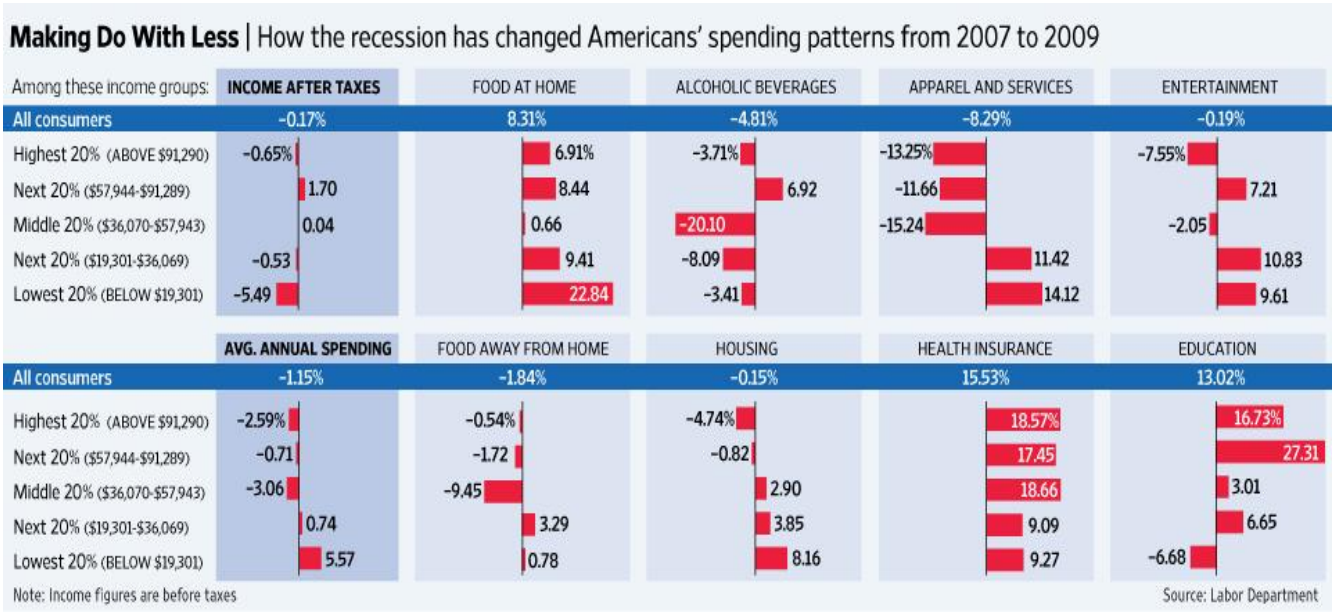
The effects of the recession have hit nearly every segment of the economy, from manufacturing to banking to the service sector. One sector however, in my opinion, has the ability to benefit from this recession in ways that the other industries may not. This sector is the technology sector, a field where for over a decade the number of jobs available has outpaced the number of knowledgeable workers available to do the work in America. Given the increase in available human capital, I see the recession as being a potential goldmine for this industry, and this study aims to discover whether or not these technology organizations have been able to capitalize on this, or whether the recession is in fact no better for technology related companies than companies in any other field of business.

The technology sector in the United States has been constantly plagued by a shortage of skilled workers; as noted in the documentary *Waiting for Superman*, high-skill high-pay jobs (of which the technology sector is a part of) are expected to grow to 123million in 2020, while there will only be 50million workers in the United States who are even qualified for such work. If this is true, then it would be feasible to accept the possibility that a recession would not impact the technology sector in the same way it would other industries such as manufacturing or banking. Given the rise in unemployment, there should be, in principle, more skilled workers comprising the available job-seeker pool, and as such, the technology sector should benefit the most from such a recession.

Given the nature of American business practices, where capitalism is more narrow-sighted and short-term oriented as Geert Hofstede noted with his 5 dimensions studies. America ranks the lowest of all the countries on the lists, scoring a 29 compared to the average world score of 45. A country like Japan scored 77 (Hofstede 2003). Given this data, it is possible that the opportunities previously mentioned may go unanswered.

*Unemployment and Spending*

Nationally, the United States has been hit by particularly hard by this recession in part because of the financial strain it has put on the working class, which makes up for much of the consumption and spending within the country, as noted in the following view of how spending habits have changed in America since the recession:

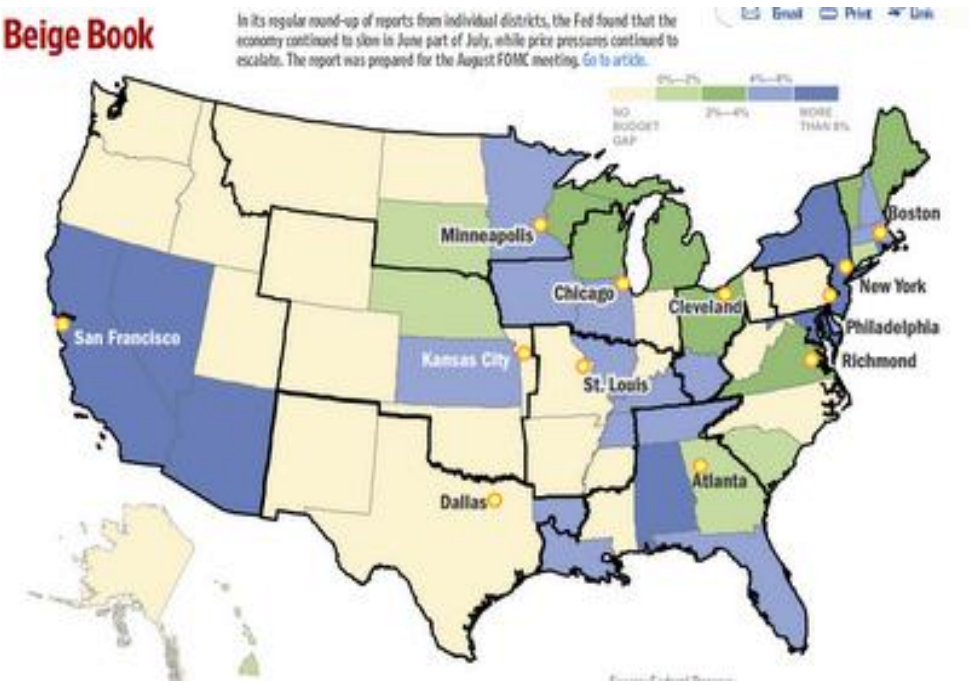



*Source WallStreetJournal

The chart shows a lot of statistics, but a few important once are especially worth point out. First, according to the Labor Department, "Households in the middle fifth of the population sliced their average annual spending to $41,150 in 2009...down 3.1% from 2007 and 3.5% from 2008, the steepest one-year drop since records began in 1984" (Labor 2009). The study goes on to show "the poorest Americans spent more as prices for necessities like food and rental housing climbed. Spending rose 5.6% from 2007 to 2009 for the poorest fifth of consumers...despite a 5.5% drop in after-tax income" (Labor 2009). The impact of this recession is really placing strain on the middle and lower-class American households, as Timothy Smeeding, a professor at the University of Wisconsin put it when asked, "what you're looking at here is people at the bottom trying to hang on" (Labor 2009). The situation has been grim for years and shows no sign of letting up for those who do not have large excesses of disposable income.

At the local level, there is little that can be done to bring jobs back to towns and cities that have been hit hard by layoffs and reduced spending; with private industry making up the majority of jobs that were laid off, the local governments have little in the way of control when it comes to assisting with new job creation. Again, as mentioned on the National level, the finances that are available to local

governments are largely being drained due to increased filings for unemployment and medicare/medicaid which has tapped into resources that are nearly depleted in many regions as noted in the following. States in dark blue are running deficits in excess of 8% of their own output, while light blue runs 6-8%. Green represents a 4% budget gap, and this study was done in 2009 when the recession was underway but it has only gotten worse. (Capitalism 2009)




*Source Capitalism

The report on these states was conducted by the Federal Reserve and shows that the symptoms of the recession have begun creating a cycle within the economy that keeps on hurting itself. There is a projected "$40 billion shortfall in the current fiscal year (2009)" (Capitalism 2009). Furthermore, the study explains some of the causes for such a drastic change from boom to losing money. "The gap...is more than triple the size of the previous years. It is the result of broad economic weakness...Sales-tax collections have been hurt by the housing slump and gasoline prices...Personal income-tax collections have been hit by unemployment, while corporate income-tax collections have been eroded by falling profits" (Capitalism 2009). As anticipated, the article largely cites the American fascination with

consumerism as a cause for this quick turn of events, with spending outpacing savings, and Americans (in this case the states) leaving little or no money in reserve should times get rough.

Watchdog.org, an organization that keeps track of irresponsible government spending showed the problem did not let up at all going into the 2010 year. They found that "36 states already report another round of gaps since fiscal year 2010 began. The total now hit 28.2billion (this report was made in January), and the fiscal year for most states doesn't end until June" (Watchdog 2010). The worst of it is not in the numbers being shown however, it is in the numbers that are not calculated. "According to a 2007 Pew center on the States report, states have an outstanding liability of about 2.73trillion US dollars in employee retirement, health and other benefits coming due...of which more than 731billion US dollars is unfunded" (Watchdog 2010). Hiring new employees, or at least retaining the ones that already exist within the company sounds to be the most logical step to stopping the hemorrhaging that is taking place in the US economy, and the technology sector, with its surplus of unfilled jobs has the best chance of kicking off this turnaround, and this study aims to see if they have capitalized on this possibility.

At the Bureau of Labor Statistics, data is released monthly showing unemployment statistics as well as employment; the figures are as follows to give a representation of what has been going on in the labor market.

| Labor Force Statistics from the Current Population Survey | | | | | | | |
|---|---|---|---|---|---|---|---|
| Original Data Value | | | | | | | |
| | | | | | | | |
| Series Id: | LNU04000000 | | | | | | |
| Not Seasonally Adjusted | | | | | | | |
| Series title: | (Unadj) Unemployment Rate | | | | | | |
| Labor force status: | Unemployment rate | | | | | | |
| Type of data: | Percent or rate | | | | | | |
| Age: | 16 years and over | | | | | | |
| Years: | 2001 to 2011 | | | | | | |
| | | | | | | | |
| Year | Jan | Mar | May | Jul | Sep | Nov | Annual |
| 2001 | 4.7 | 4.5 | 4.1 | 4.7 | 4.7 | 5.3 | 4.7 |
| 2002 | 6.3 | 6.1 | 5.5 | 5.9 | 5.4 | 5.6 | 5.8 |
| 2003 | 6.5 | 6.2 | 5.8 | 6.3 | 5.8 | 5.6 | 6.0 |
| 2004 | 6.3 | 6.0 | 5.3 | 5.7 | 5.1 | 5.2 | 5.5 |
| 2005 | 5.7 | 5.4 | 4.9 | 5.2 | 4.8 | 4.8 | 5.1 |
| 2006 | 5.1 | 4.8 | 4.4 | 5.0 | 4.4 | 4.3 | 4.6 |
| 2007 | 5.0 | 4.5 | 4.3 | 4.9 | 4.5 | 4.5 | 4.6 |
| 2008 | 5.4 | 5.2 | 5.2 | 6.0 | 6.0 | 6.5 | 5.8 |
| 2009 | 8.5 | 9.0 | 9.1 | 9.7 | 9.5 | 9.4 | 9.3 |
| 2010 | 10.6 | 10.2 | 9.3 | 9.7 | 9.2 | 9.3 | 9.6 |
| 2011 | 9.8 | 9.2 | | | | | |

*Source BLS

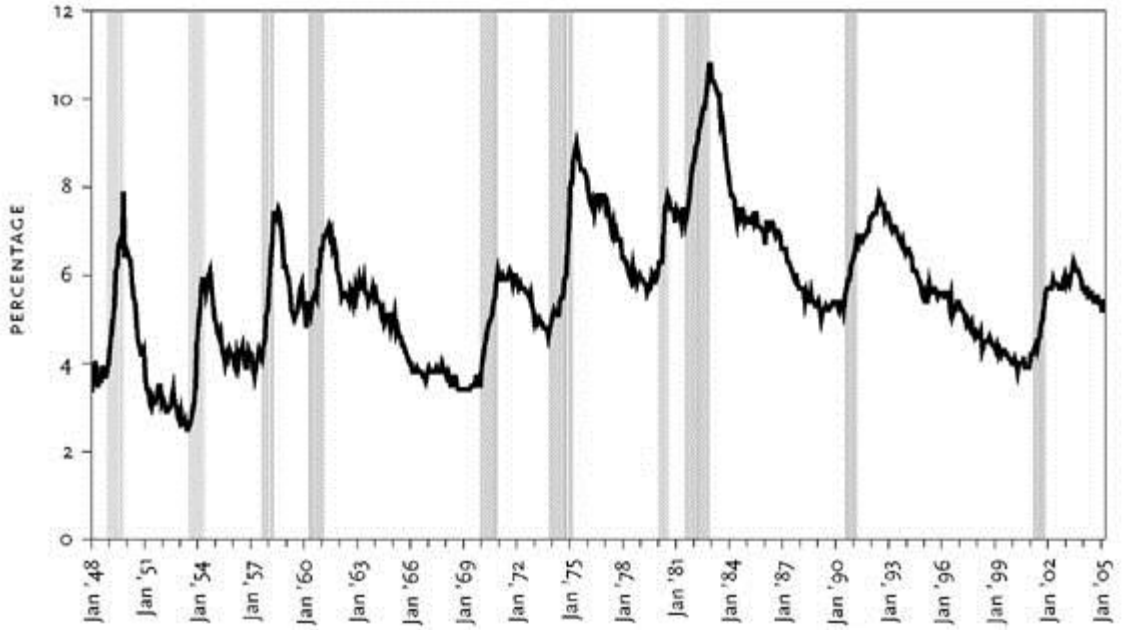
The statistics show a huge jump in unemployment over 3 years (doubling or more in some cases) and the following chart represents the number of out of work Americans that want a job now but cannot obtain one. This statistic is different than the unemployment statistics because while unemployment shows the total number of out of work individuals, not all of these people want a job. Some are disabled, while some are content living off of welfare and not contributing to society; because of this, the second chart shows just how many more people in America are out of work now than before but

want jobs that just do not seem to be available.

| Labor Force Statistics from the Current Population Survey | | | | | | | |
|---|---|---|---|---|---|---|---|
| Original Data Value | | | | | | | |
| | | | | | | | |
| Series Id: | LNU05026639 | | | | | | |
| Not Seasonally Adjusted | | | | | | | |
| Series title: | (Unadj) Not in Labor Force, Want a Job Now | | | | | | |
| Labor force status: | Not in labor force | | | | | | |
| Type of data: | Number in thousands | | | | | | |
| Age: | 16 years and over | | | | | | |
| Job desires/not in labor force: | Want a job now | | | | | | |
| Years: | 2001 to 2011 | | | | | | |
| | | | | | | | |
| Year | Jan | Mar | May | Jul | Sep | Nov | Annual |
| 2001 | 4517 | 4144 | 5180 | 4542 | 4396 | 4375 | 4590 |
| 2002 | 4938 | 4426 | 5533 | 4921 | 4500 | 4407 | 4677 |
| 2003 | 4779 | 4763 | 5482 | 4955 | 4637 | 4201 | 4726 |
| 2004 | 4913 | 4667 | 5371 | 4767 | 4720 | 4755 | 4852 |
| 2005 | 5136 | 4858 | 5386 | 5081 | 4757 | 4466 | 4985 |
| 2006 | 5095 | 4729 | 5201 | 5006 | 4434 | 4476 | 4786 |
| 2007 | 4633 | 4365 | 5551 | 4900 | 4503 | 4337 | 4703 |
| 2008 | 4977 | 4492 | 5393 | 5213 | 4895 | 5077 | 4983 |
| 2009 | 5866 | 5535 | 6612 | 6244 | 5650 | 5618 | 5894 |
| 2010 | 6108 | 5719 | 6381 | 6143 | 5949 | 5832 | 6059 |
| 2011 | 6643 | 6250 | | | | | |

*Source BLS

The chart that follows is a graph representing the levels of unemployment in the United States since 1948.

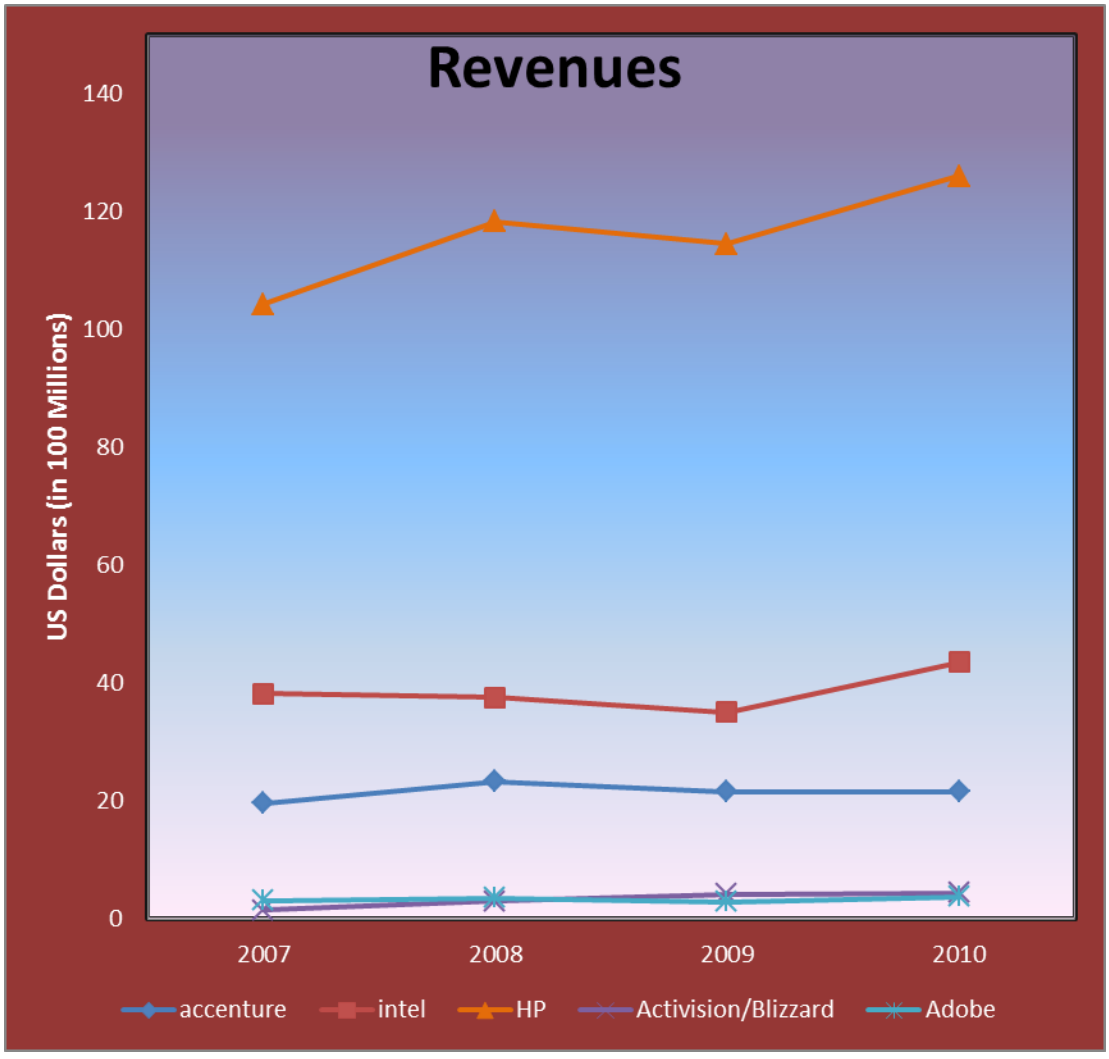



**Grey areas represent a recession*

*Source BLS

## Part IV: Analysis of Data

Data was taken from five technology companies over the period of 2007 through 2010. Intel, HP, Adobe, Activision/Blizzard, and Accenture were all compared to one another and graphics were designed to display this data. Though the recession is still underway, during the length of the recession, these companies have managed to maintain growth rates in numerous measures that do not match the term recession at all.




Revenues for each of the companies is displayed above, with a trend line analysis below; trend line analysis gives an indication of the total positive or negative growth these companies have experienced for the duration of this study. In respect to revenues, the trend in the technology sector is distinctly

positive, despite being in a recession. Detailed growth in revenue for each company is as follows:

Accenture: 9.67%

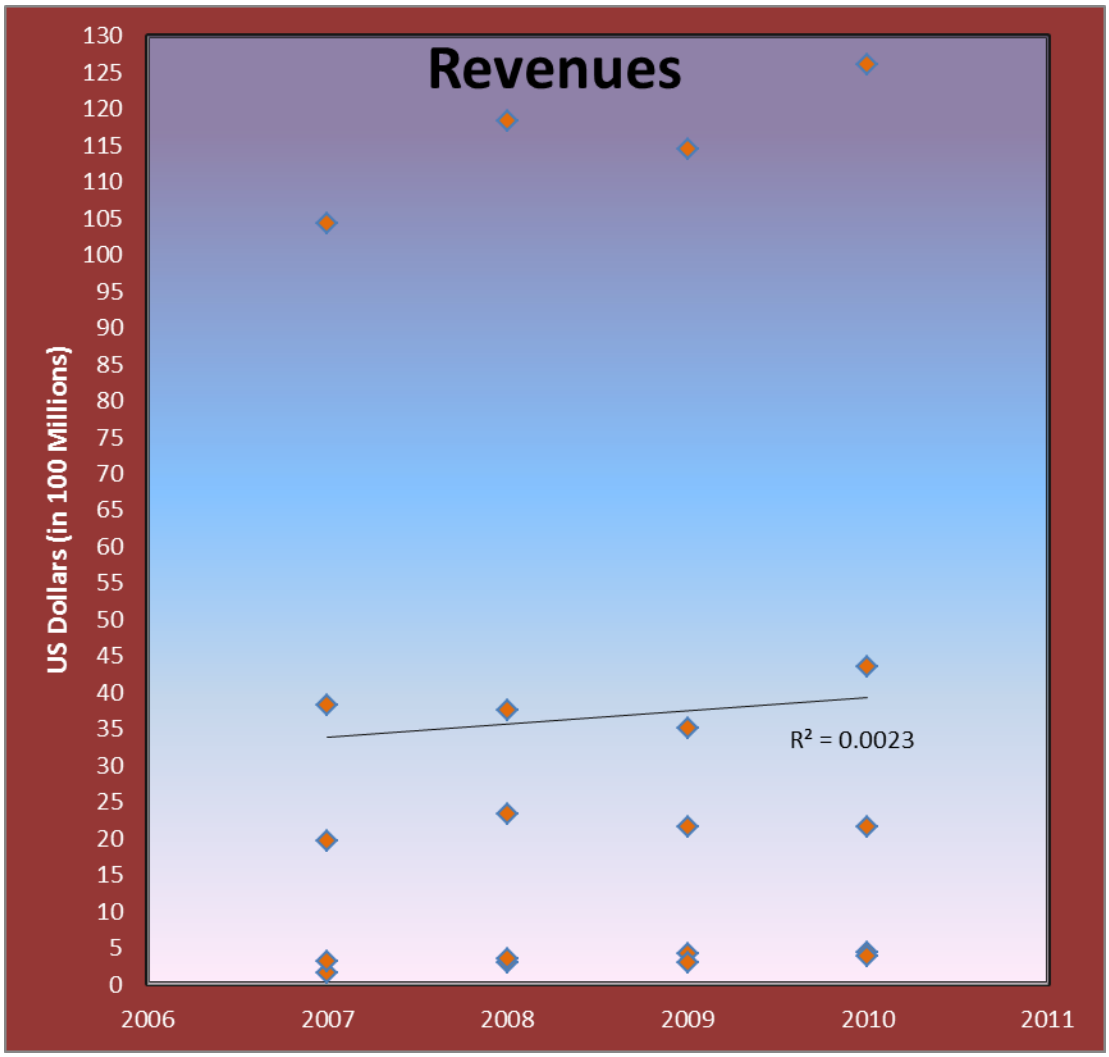
Intel: 13.84%

HP: 20.85%

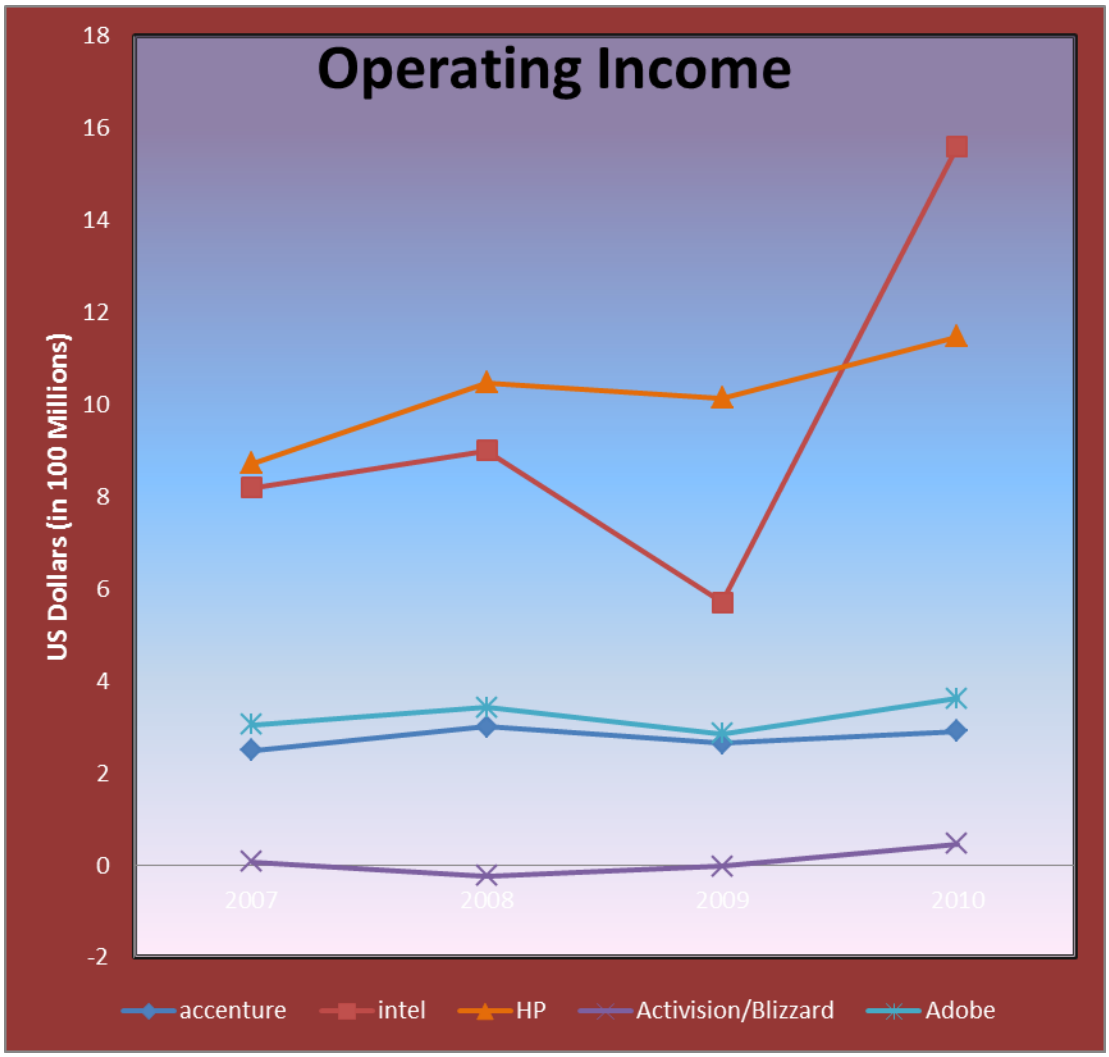
Activision/Blizzard: 193.92%

Adobe: 18.75%

How does each one of these companies manage to maintain considerable growth over a four year period while other industries lag behind, GDP is not growing, and consumer spending is down? Accenture tuned into their clients, and "while Accenture was not immune to the effects of the global economic downturn, our disciplined management enabled us to deliver strong profitability…we stayed close to our clients, adapting to their changing needs in areas such as cost management, operational improvement and customer retention" (Accenture 2009 pp 2). Intel developed new products that were cheaper and therefore more accessible to those with reduced income; "microprocessor unit shipments for the PC Industry were up 6% in 2009…fueled in large part by the popularity of mobile computers, including the affordable Intel Atom processor-based notebooks" (Intel 2009 pp 3). HP adopted new techniques when they saw their business lagging; "HP has become a much more agile company, able to adapt and benefit from changing market conditions…in the first quarter, Personal Systems Group (PSG) revenue declined 19% from the prior year, but the business was able to adjust quickly…over the course of the year PSG captured the #1 position in the U.S. enterprise market with double-digit share gains" (HP 2009 pp 2).




Operating income, often a measure of how well a company is handling product costs, was also up for each of these companies throughout the recession, implying effective tactics in the management of supplychain and product purchases. Below is the operating income for each company followed by a trendline indicating the overall growth for the technology sector sampled.




For each of the companies, specific growth rates are presented below:

Accenture: 17%

Intel: 90%

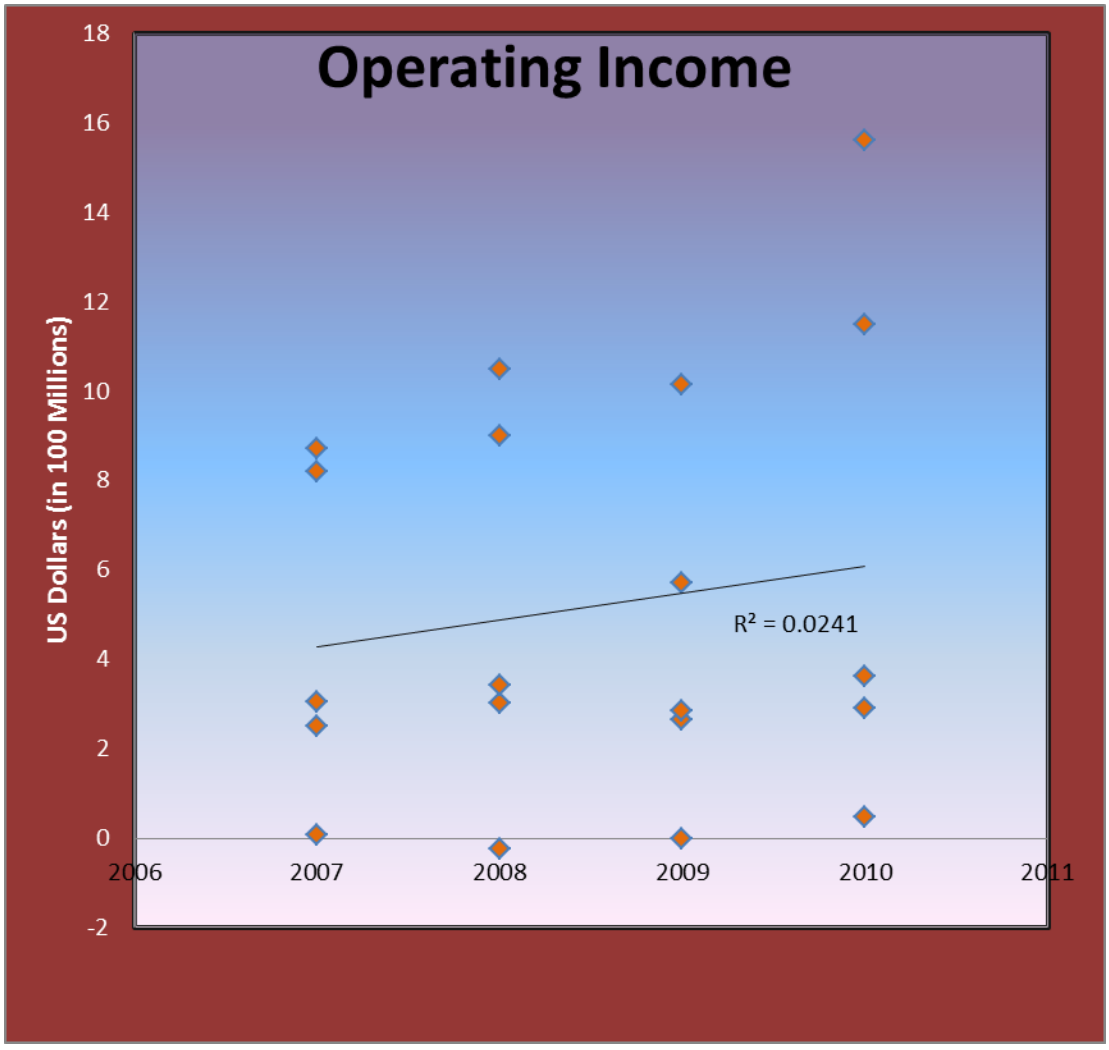
HP: 32%

Activision/Blizzard: 542%

Adobe: 19%

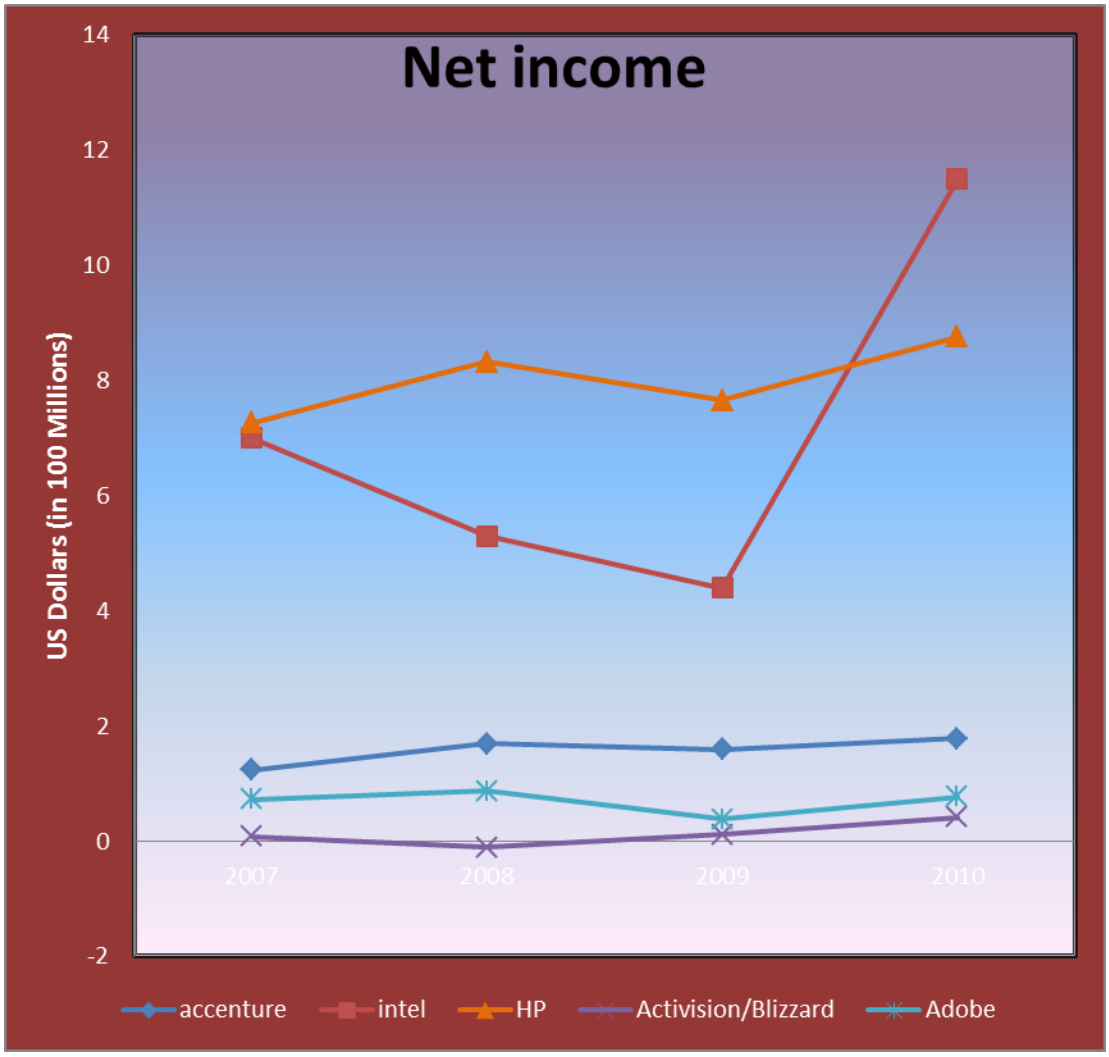
This figure gives a better understanding of how well the company is financially going into their other costs. After product costs are taken into account, operating income is the money available to spend in growth opportunities such as R&D and employee salaries. Growth in these figures shows that product

price points are not being reduced for the sake of revenues (associated with selloffs, sales and other techniques) therefore it is likely that these companies have not needed to compromise their market positions during the recession. Adobe, a company that actually saw revenues fall significantly (19%) in 2009, still managed to provide a solid operating margin by "proactively decreasing operating expenses…although our revenue declined, we managed our expenses well even as other companies struggled to maintain profitability" (Adobe 2009 pp 1).




The next figures represent net income for the companies, this is the total amount of cash the companies have after all expenses have been taken care of. Essentially this figure shows whether the company has managed to maintain sales, keep costs reasonable, and continue to grow their business. Net income is one of the key metrics used to judge the health of a company, and in the case of the technology sector,

once again growth is substantially positive, depsite a recession in other segments of the market. Figures for each of the companies follow below:




Accenture: 43%

Intel: 64%

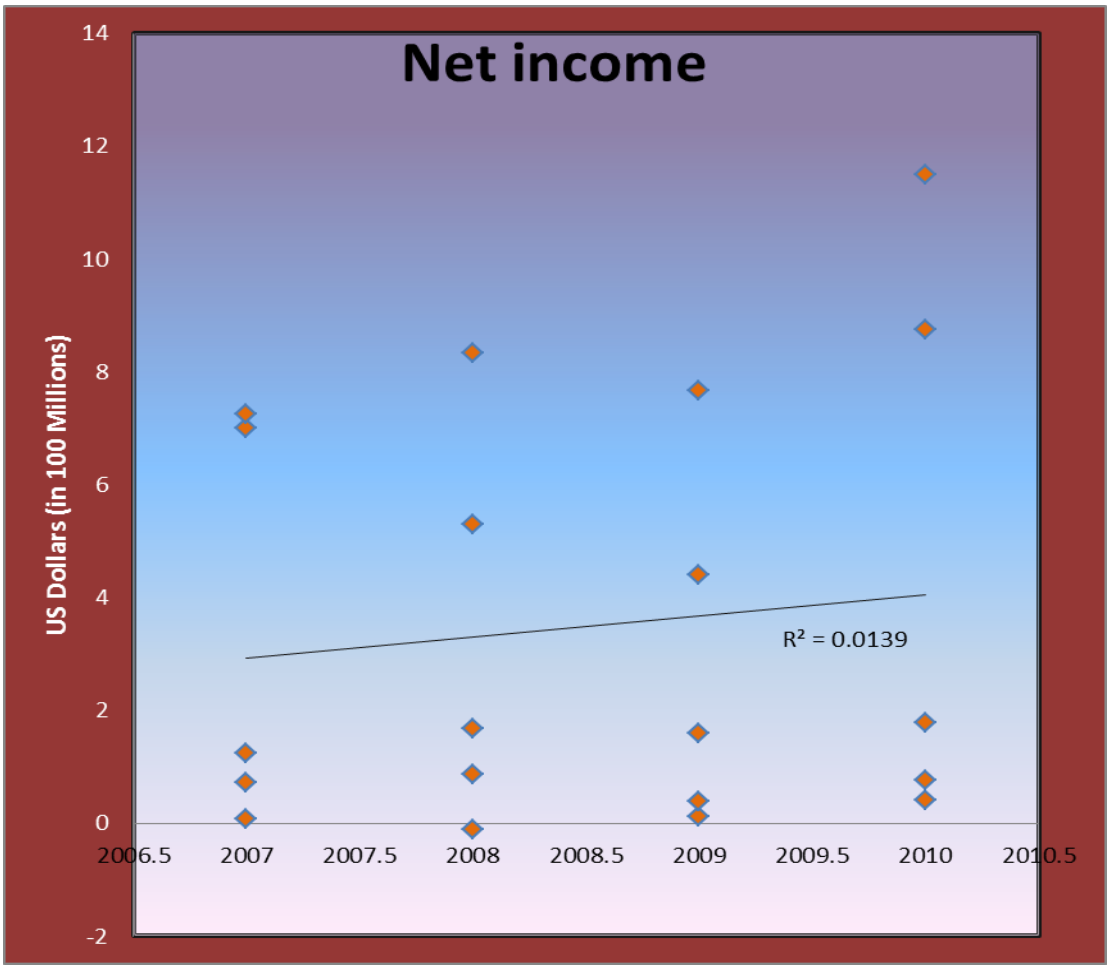
HP: 21%

Activision/Blizzard: 392%

Adobe: 6%

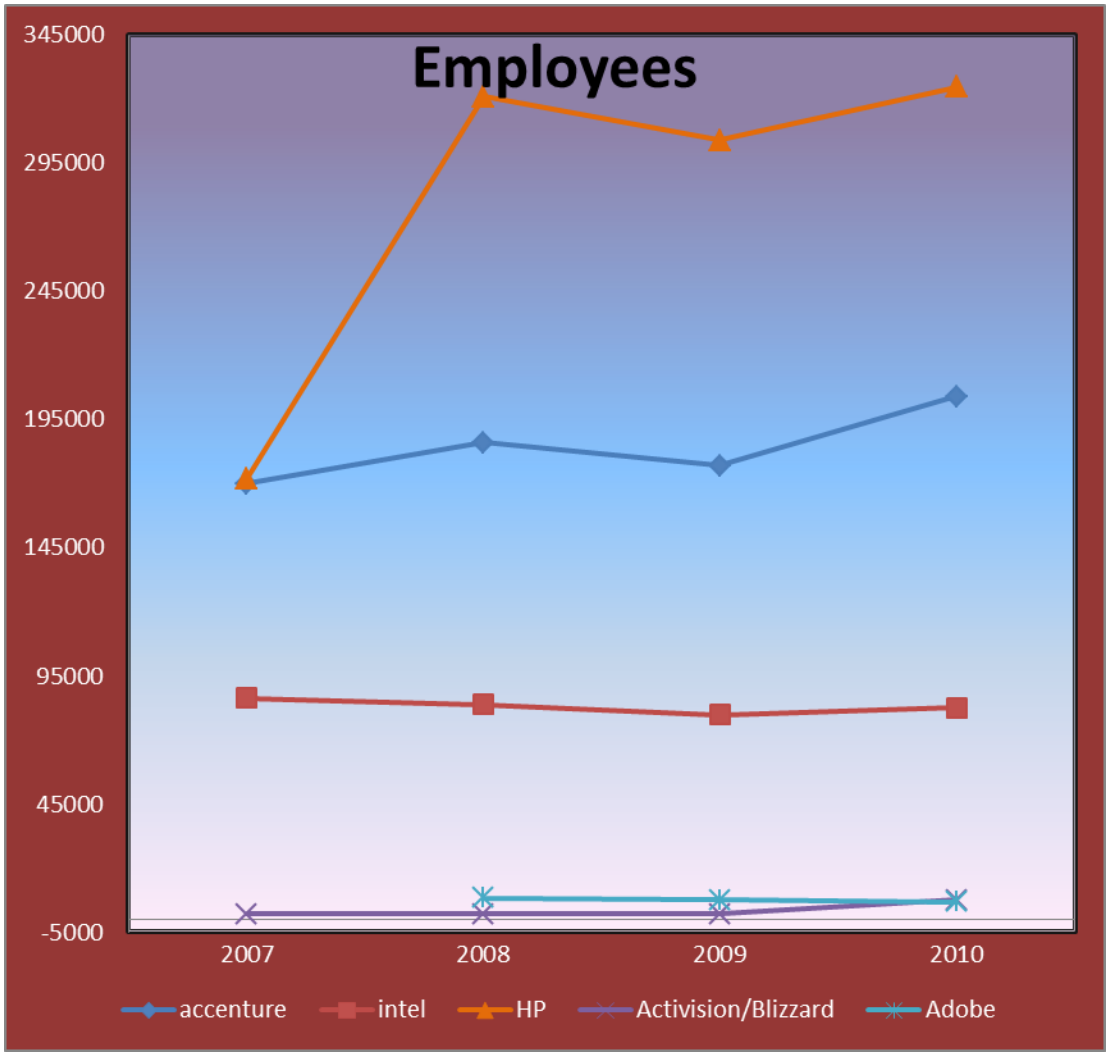
Over the period of 2007 until 2010, each of these companies has seen growth in their net income, implying that their companies as well as their industries are continuing to grow. This potential for

growth was led by strategic management decisions such as those used in Adobe, who cited their success through "the ability to forecast emerging trends and position ourselves favorably for the future" (Adobe 2010 p 2) while also maintaining a socially responsible image, "We are ranked as one of the top 50 most socially responsible companies in the United States...in 2010 Adobe was honored as one of the World's Most Ethical Companies" (Adobe 2010 p 2). Intel took the approach of capitalizing on a product that had seen considerable success and was relatively without competitor, the Atom processor, and found new ways to engage people with this technology "Intel is aggressively pursuing opportunities in these new device categories with the Intel Atom processor…we have over 4,900 total designs (for the Intel Atom) and we shipped our 80 millionth Intel Atom processor in 2010" (Intel 2010 p3). This product was only a year old but management saw its capability and found new ways to utilize a product that had been widely accepted by the public as cheap, efficient, and fitting the needs of a household with lower spending ability.



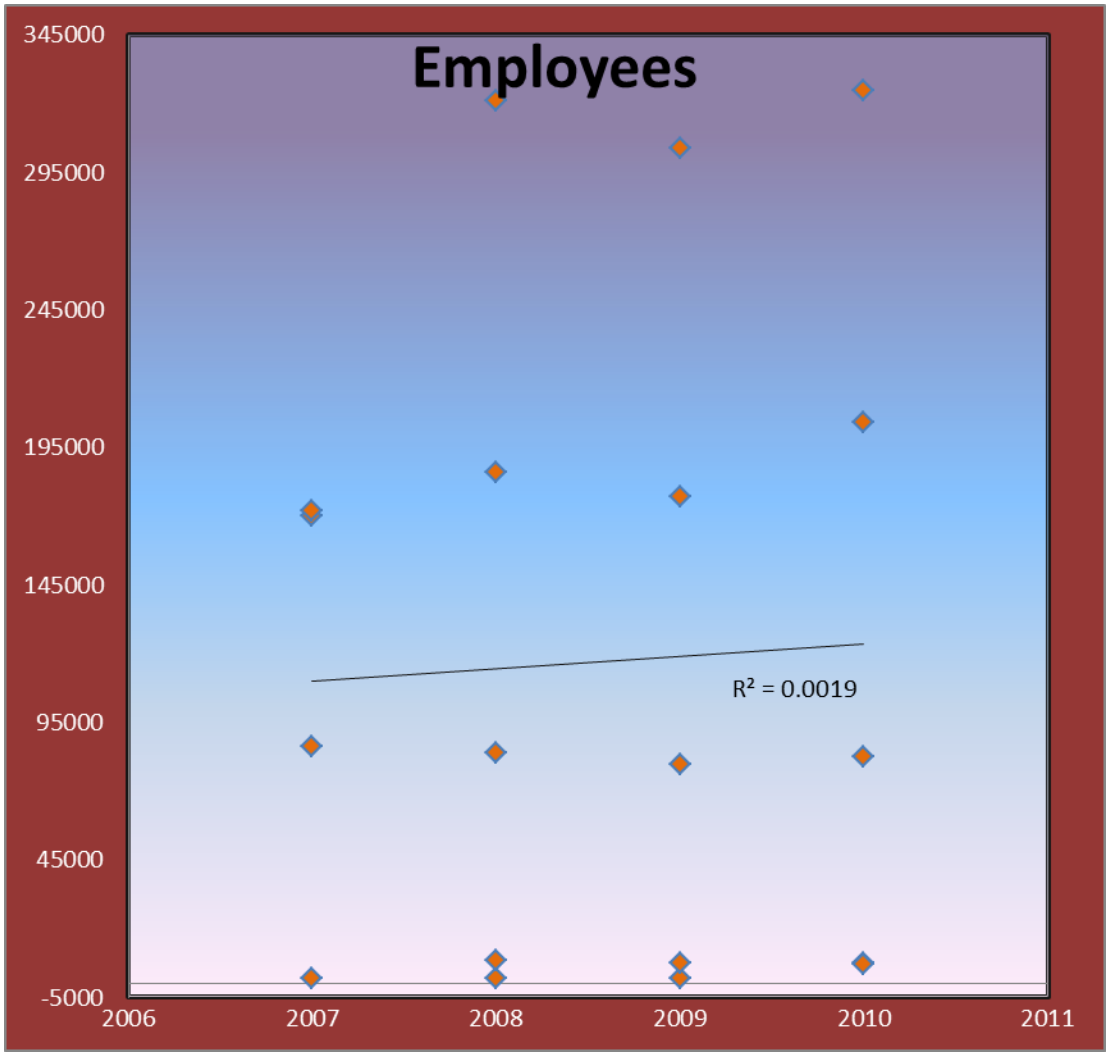

One of the biggest fears of anyone in the job market is the threat of layoffs and unemployment; in a recession unemployment rises due to uncertainty in demand in the marketplace, and therefore

companies layoff or fire workers to maintain income while revenues fall. In the case of the technology sector, this does not appear to be the case, with many of the companies reviewed actually increasing their employee headcount by significant amounts. Adobe and Intel were the two companies that actually reduced their employee headcount, but in the case of Intel it was a meager 4% of a workforce of more than 86,000 individuals. On the other hand, companies such as Accenture saw increases of 20% while HP grew their workforce nearly 90% during the recession.



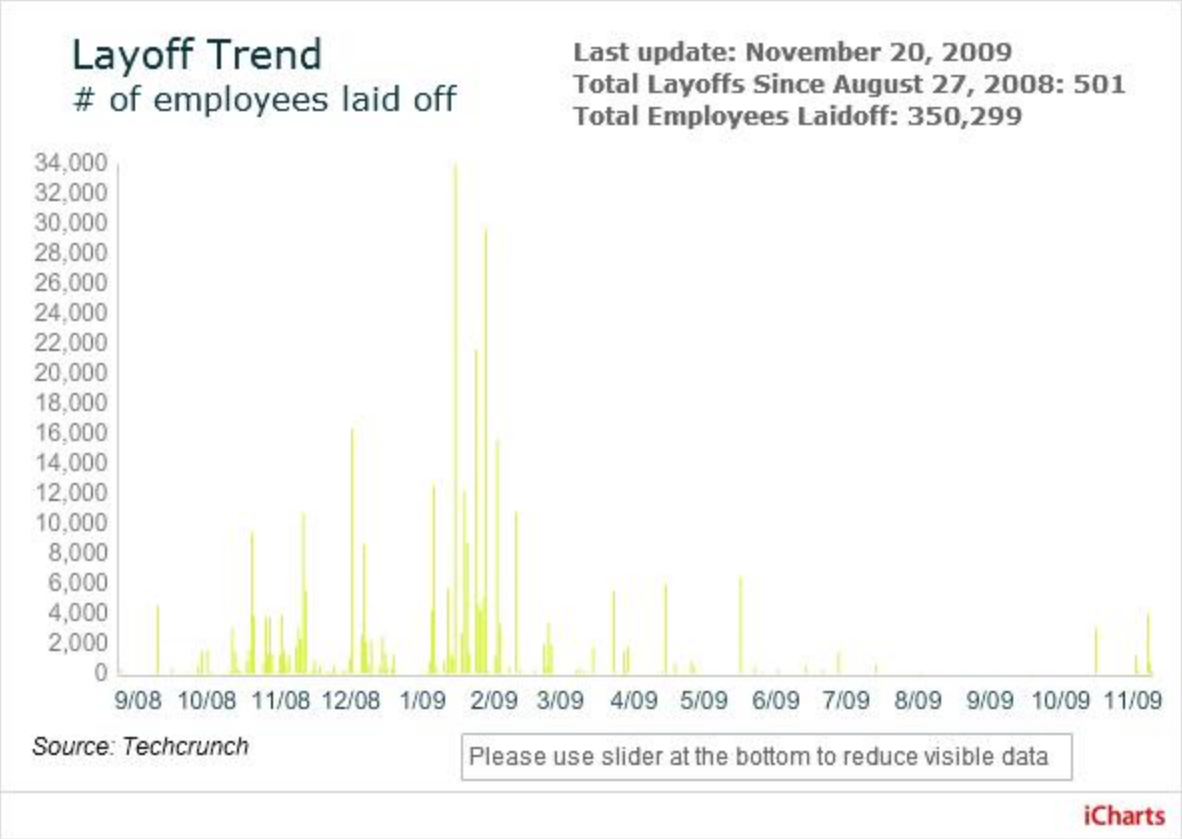

Emphasis was stressed on the importance of human capital within the technology sector, as noted in several of the yearly reports issued by these companies. In Accenture for example, significant funding was given to in-house training efforts. In 2008, in the mists of the recession and with no ability to predict a turnaround in the economy, Accenture "invested $986million in training our people to help ensure they have the differentiated skills and capabilities to stay relevant to our clients" (Accenture

2008 p 2), while in 2009 they continued this trend, "To ensure that our people have the necessary skills to serve clients…we invest significantly in their training and professional development – nearly $800million US dollars in fiscal 2009 alone" (Accenture 2009 p 3). Growth in the headcount at companies such as HP also have been spearheaded by the notion that good people make a good company; R&D in HP during the 2008 period continued at the levels of 2006 and 2007 despite economic uncertainty, and the company continued to hire on new employees to increase their market share and competitiveness.




These employment figures show that the technology sector has maintained employment growth or at least not succumbed to the layoff craze that hit other sectors significantly during the recession. As a reference to just how significant this is, the following depicts the layoff trends within the United States over the last several years. Notice that in periods of higher layoffs, the technology sector as mentioned

above was continuing to hire employees steadily.




*Source Techcrunch

The stock price of a company is another indicator of how well the company has performed over time and how investors look at it in regards to stability and growth potential. While stock is a measure of a company from an investor's point of view, it does not provide accurate results of the company's profitability, but instead shows how much faith there is in the management within the company as well as their growth potential, financial strength, and long-term viability. In the following chart, several companies were compared; the technology companies mentioned in this study (Adobe, Activision/Blizzard, Intel and Accenture) while three companies in non-technology markets were included to give a point of reference. The three companies that were chosen to represent the competition in this argument were chosen for a particular reason; all of these companies were part of the bailout process that the United States government issued at the start of the recession, claiming that trickle-down economics would revive these companies, their industries, and subsequently the economy. These companies are General Motors, Goldman Sachs, and Bank of America, three very highly known

companies that were considered to be at the pinnacle of their respected industries (Automotive, finance, and investment banking respectively). Despite receiving significant funding from the United States in the form of the bailout, the trickle down policy did not revamp these companies as intended, and the stock prices reflect this; instead, these companies have continued down the same road as other industries have during the recession despite receiving huge cash infusions that promised consumers a quick fix solution.


*The company symbols are as follows: GM = General Motors, BAC = Bank of America, GS = Goldman Sachs, ACN = Accenture, ATVI = Activision/Blizzard, INTC = Intel, ADBE = Adobe*

*Source NASDAQ

As noted in the charts, GM and Goldman Sachs have had considerable dips in their value even though this chart is representative of the last six months and arguably the recession has begun to improve. Bank of America has not seen growth either, with a short rise in value followed by the subsequent decline leaving the stock price nearly flat. All this time however, the stocks of technology firms, who were independent of the bailout and instead used sound managerial practices to improve their companies, have nearly all seen positive stock price increases with the exception of

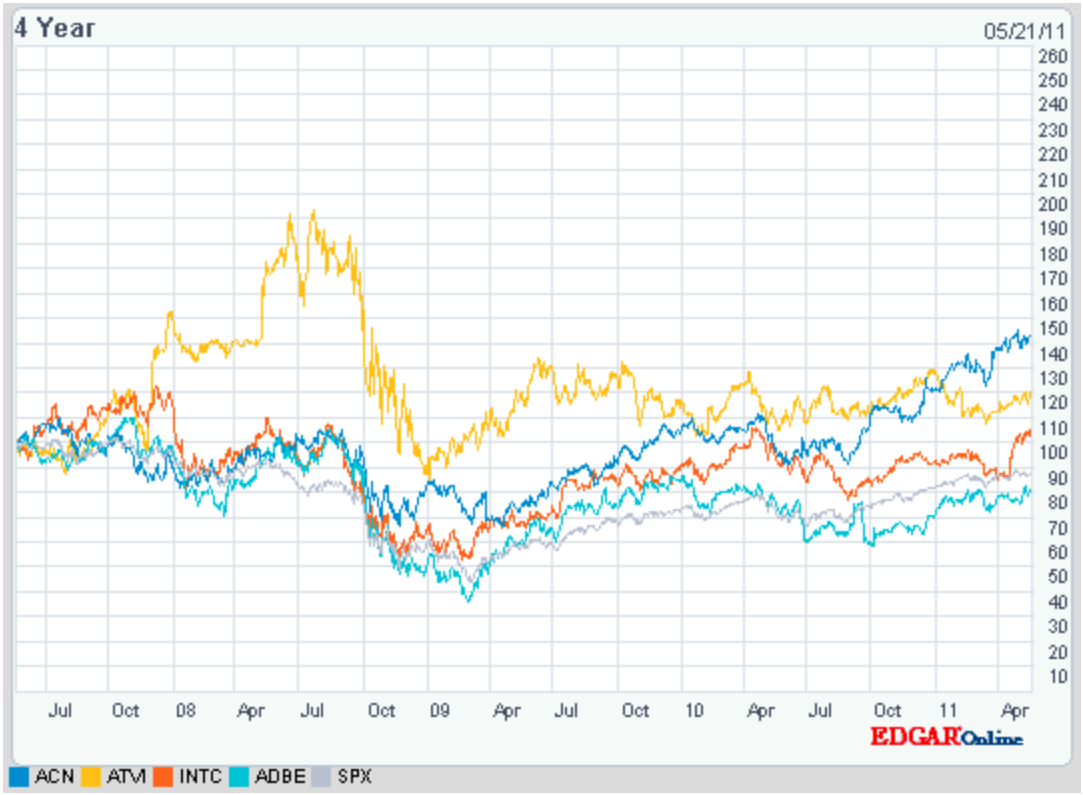
Activision/Blizzard.

Another look at stock value will help put in perspective the overall success of the technology industry. The following two charts represent the progress of technology firms over the last four years in comparison to both the Dow Jones Industrial Average, the stock index comprised of non-technology related companies, as well as a comparison to the S&P 500 index, the top 500 companies in the market. The first of these strictly deals with non-technology companies, while the latter does involve some technology companies, including ones on the list, but is weighted against non-tech companies. The idea of the latter graph is to show how these companies have performed independently when compared to the top companies in the market.


*Source NASDAQ

Over a period of four years, the technology sector has beaten out the performance of the Dow Jones Industrial index (shown in grey) in nearly every situation. The only company falling behind in performance is Adobe in relation to stocks, and this may tie into the reductions in staff (19% over this period) coupled with some difficult earning periods. With that exception, while the Dow Industrial Index has fallen, each of the other technology companies has managed to surpass it in a stock market

basis.




*Source NASDAQ

During the same four year period, the trend continues with the S&P 500 as it was with the Dow Industrial Index; with the exception of Adobe, once again the technology companies have surpassed the top 500 organizations being traded in the market, showing that the management tactics in place with these companies during the recession have all but thwarted the typical declines in growth and profit usually associated with a recession.

## Part V: Conclusion

### 1. Management standpoint

Despite a worldwide economic recession that has had profound implications on business globally, the technology sector, while not unscathed, has found ways to grow and expand their business despite the trouble a recession brings. With reductions in spending, consumers are willing to forgo products that do not cater towards them; non-essential purchases are reduced and spending becomes thriftier. To adapt, technology companies have continued to invest heavily in research and employee training, seemingly contrary to the normal logic used in a recession. Rather than hoarding cash reserves, the technology companies reviewed tended to invest their cash in new ventures and products, while also strengthening the capabilities of their employees through training. Activision and Blizzard merged to create the largest video game producer in the world as the recession began, while Accenture invested heavily in employee training to stay relevant and ahead of their competitors when the market shifted. Intel devised new products and means to market that product in a lower price segment while still keeping functionality, offering new products to consumers that provided similar performance and lower costs than previous models. HP diversified their business and streamlined their company, becoming more efficient and able to react sooner to changes in their environments, while Adobe emphasized their role as an environmentally conscious company worldwide (something Intel also achieved.

Like the studies done by Hauw and De Vos (2010) the importance of individual fulfillment within the workplace cannot be understated. The companies involved in this study took measures to make sure that employee contributions were recognized and talents were not unused. In the cases of Intel and Adobe, massive amounts of manpower were poured into charitable activities, giving meaning to the work that individuals performed. Intel noted in 2010 that "over the last three years (employees) have contributed more than 3 million hours of volunteer service" (Intel 2010) providing employees with a way to continue working and learning within the company, something Hauw and De Vos pointed out as an important part of work for the millennial generation. In Accenture, in-house training was at the forefront, and employees were empowered by learning new techniques and methods to assist their clients. In 2010 they "invested nearly $600million in training and professional development" and "ended the year with approximately 204,000 people…a significant milestone" (Accenture 2010). Continuing the training and hiring within the organization fulfilled the needs of employees to feel that their employer had maintained the psychological contract that they had entered into when signing for

the company (see Newell et al 2009; Hauw & De Vos 2010). By meeting these needs, employee confidence rises, productivity increases and companies were able to continue to grow in a recession.

The importance of training can also not be understated in these situations; in other studies (ITNOW 2010; M.S. Rao 2009; Katsimi 2008) all contribute to the implications training may have on employee performance. In this study, the importance was validated through statistical analysis, showing that indeed, despite changes in the economic climate, the companies that continued to train their employees during this time continued to see growth in revenues, income (profits) and stock value. In each of these companies, the importance of employee knowledge, contribution and capacity was acknowledged in annual reviews or through shareholder letters; training for the future was something that resounded within all of these companies. Like the study by M.S. Rao, the importance of this training does indeed "enhance employees' confidence and commitment to their organization. This energy in turn creates increased revenues for the employer" (M.S. Rao 2009). My study validated this claim, with employee counts rising in many of these companies, and with Adobe, Accenture, and Intel all making the *100 best companies to work for in 2010* ranking on Fortune magazine.

Companies are only as successful as the management that runs it and the capabilities the people employed are willing to utilize. In these cases, despite having a recession, management used the recession as a tool to drive innovation and strengthen their companies. Given the intensity in which the technology development within this segment of the economy occurs, it is critical for companies to stay ahead of their competition by maintaining innovation within their workforce. Rather than reductions in staffing, these companies understood that "knowledge work depends on the capacity, motivation and performance of knowledge workers" (Newell et al. 2009 pp 125). It was understood that workers were an asset that was not easy to come by, and the when the opportunity to hire talent due to higher unemployment associated with the recession presented itself, these companies within the technology sector jumped at the opportunity, as seen by the growth in employment they shared. "Where other workers were seen as labor costs to be minimized, knowledge workers were seen more positively – they were *human resources* not costs" (Newell et al. 2009 pp 126).

**2. Economics standpoint**

This study was intended to show how management can use economic tools to their benefit by understanding the processes that economics take when reviewing economic strength and weakness.

Perhaps involuntarily, these companies have used topics within Keynesian economics to their benefit without explicit knowledge of doing so.

In regards to the second and third principles of Keynesian economics, companies in the technology sector understood that the fluctuations in the market that the recession brought with them did not necessarily devalue their goods, which is a common misconception in recessions. While the price curve can be altered to match demand and make a new equilibrium point, these changes are and were short-term; in the long-term, price was not affected, and as such these companies understood this. Rather than selling products at a reduced price, they opted instead for new innovation, creating products that were cheaper, but also cheaper to produce (in the case of Intel), while companies like Accenture changed the manner in which they did business, retraining employees to work with supply-chain price consolidation and learning how to streamline their client's organizations. This allowed them to retain practical pricing that did not erode sales. This conclusion is justified by the steady increases in Operating profits seen in the companies; if product prices had been reduced, cost of goods sold would have increased, and while revenues may have gone up, there would have been a plateau within operating profits and subsequently net income within these companies.

The fourth principle of Keynesian economics related to the manner in which unemployment is triggered by aggregate demand; Keynesians argue that the unemployment rate is not ideal, as it does not react correctly to changes in demand. The large increase in unemployment in the United States was, as mentioned before, caused by a panic response that many companies employed as cost saving measures to weather the recession. However, in the technology sector, management understood this rising trend was not directly related to economic problems, but rather an issue of overcorrection in the employment market; rather than lay off employees on a large scale, the majority of the companies reviewed saw that this was still a period for potential growth, and hired into the recession. While demand did indeed fall, as consumer spending decreased, they found new ways to increase the productivity of their workers to avoid redundancy and improve their companies. Intel employees contribute more than 3million hours of volunteer work yearly as of 2010, while Accenture encourages pro-bono work within their company. This type of work allowed employees to continue increasing their experience, improved the images of the company from the view of a consumer, and in the eyes of the employees within the company, instilled faith in their ability to produce meaningful work while also strengthening the bond between management and their subordinates.

Principle six, relating to the importance of lower unemployment was something that management

within the technology sector grasped much better than in other sectors. Lower unemployment is the bane of any economy, and as such should be emphasized as the dominating priority when trying to correct an economic shift. While the United States government works on dealing with issues such as inflation, with the exception of the bailout that followed the trickle-down economics theory, a proven folly, there has been no attempt to really combat unemployment. Organizations in the technology sector recognized that without income, how will a consumer buy products? By maintaining their levels of employment and in many cases growing them, technology firms have created the true trickle-down effect; these employees will be able to consume at normal rates because they have confidence in their jobs (thus increasing their confidence in spending income rather than saving), and they have the money to actually make these purchases. In turn, this money is fed through the economy again and maintains employment for other individuals that made the goods they consume.

**3. Summing up**

What did managers in the technology sector do that allowed them to continue growth and outpace other industries despite an economic recession and furthermore, how can these methods help managers in the future?

*Training*

The importance of continued on the job training was always present within these companies and fulfilling prospects at jobs were always available. M.S. Rao's article on the importance of training on the job (Rao 2009) along with Felstead and Green (1994) and Hauw & De Vos (2010) all cite the importance of maintaining on the job training as a way to continue productivity and innovation within companies. Furthermore, Hauw & De Vos (2010) go into detail along with Newell et al (2009) about the importance of fulfilling the psychological contract employers have with their employees. The millennial generation, which is now and will continue to make up a larger part of the workforce, appreciate the importance of fulfilling work and career training. The psychological contract that exists between employee and employer is particularly valued by these individuals, and companies that maintain their promises of employment and career opportunities will benefit from improved loyalty and willingness to sacrifice for their job with this group of individuals.

At Accenture for example, spending on training was always a priority task for management, with the

company consistently citing the importance of training to stay relevant in their field as well as stressing the implications that this training provided (better careers, more opportunity, better growth potential), all factors appreciated by workers (See Accenture 2007-2010). Intel also highlighted their needs to maintain a highly trained and loyal workforce, and gave them opportunities to expand their abilities through hands-on experience volunteering throughout the world (Intel 2007-2010). At HP, adaptability and heightened response times to economic events were targets for training, resulting in quick thinking business groups that could adapt and modify their segments on the fly (See HP 2010).

In summary, training became a staple of the activity within the recession; rather than cutting back on training to reduce costs, these managers saw this time as an opportunity to increase their employee's capabilities. A well educated workforce, as they understood, is the key to maintaining profitability in the long-term, and the results of their endeavors showed this in the study. Given the nature of the logical empiricist approach this study took, the data gathered allows this researcher to make this conclusion. By quantifiably showing that these companies did in deed make progressive gains in their profitability throughout the recession, it is surmised that the training tactics, in line with the writings of the authors previously mentioned, contributed positively to this growth.

*Employee Retention*

During a recession, it is not uncommon (in fact it is quite common) to see companies laying off employees and the unemployment rate within the country rises. This process is one of the most stereotyped symptoms of a recession, and one that seems to prevail in any time period. In the technology sector however, the companies analyzed steered away from this status quo, with continued hiring, or at least minor reduction in staffing. In Accenture, employment at the company despite the recession increased nearly 20% while HP saw staff increases of nearly 90%. At Intel, staffing cuts were a mere 4% over the entire period of the recession, significantly lower than a recession would imply. The choice to retain, and in many cases hire on employees cultivates the important psychological contract that was discussed earlier (Hauw & De Vos 2010; Newell et al 2009) as well as the importance of avoiding the threats a downsizing event may incur. As noted earlier (Newell et al 2009) downsizing within a company can have very negative effects on morale, retention of employees that are not laid off, and motivation within the workplace. While employees at these companies knew that the economy was lagging, and they saw unemployment figures rise all around them, the fact that they were maintaining their jobs brought them that much closer to their employers. Loyalty increases through

these efforts, and employees are likely to work harder for their employers as they feel they need to contribute their part of the psychological contract that was made between them and their employer (Hauw & De Vos 2010).

Statistically, growth of employment within the technology sector sampled continued throughout the recession, and profitability did not lag as a consequence. Net income at these companies, a measure of true profit after all costs have been incurred, maintained a healthy increase throughout the years, showing that maintaining employment numbers did not strain the company's profits, despite recessionary times. By cultivating loyalty among their employees through retention in these times, productivity and innovation actually increased (as noted by increased operating profits and revenues) as employees worked harder to fulfill their end of the perceived psychological bargain they had made with employers.

*Furthering research*

This thesis, through the use of a logical empiricist approach, took a quantitative view of the performance of management; by analyzing statistical progress within these companies in various markers, management capability was then deduced to be positively or negatively influential. In this case, the managerial practices were positive, and this claim is substantiated by the quantitative data that shows growth in a period of economic strife. A s their influence is positive, a look then at the ways in which management handled the recession was taken into account. By comparing the trends of managers within these companies (in regards to hiring, training, community service, environmentally conscious actions, and tailoring to consumer needs), conclusions can be drawn from the similarities presented.

Recessions do not have to be the negative they are perceived as; as noted earlier, they are a social malady, a disordered condition (Dictionary) within society, and with proper management, the event can be circumnavigated successfully. This thesis intends to show that management, when acting in the proper interest of employees, along with adhering to valid economic principles (Keynes for example) can provide positive growth for a company regardless of conditions. By basing this deduction on valid statistical findings, the hope then is that further research will be taken in a similar approach in different fields to determine why it is that these practices are not implemented universally. By contrasting these with one another, more precise steps for management to take in these economic times would be

available for use in the future, and perhaps in time, such maladies would become less significant than they are now. By quantifying the progress managerial actions can have on a company, more concrete definitions of what works and what does not can be achieved in time.

# Part VI: References

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