

TO: THE MCINTIRE INVESTMENT INSTITUTE, MANAGERS  
 FROM: RAHUL GORAWARA (SEAS, Third Year)  
 SUBJECT: GOOGLE  
 DATE: NOVEMBER 26, 2008

Share Price as 11/26/08	\$292.09				
Market Capitalization	91.9B				
52- Week Range	\$247-\$725				
Trailing P/E	17.6				
Forward P/E	13.2				
Price/Sales	4.24				
Total Debt	0				
Total Cash	14.4B				
Current Ratio	8.08				

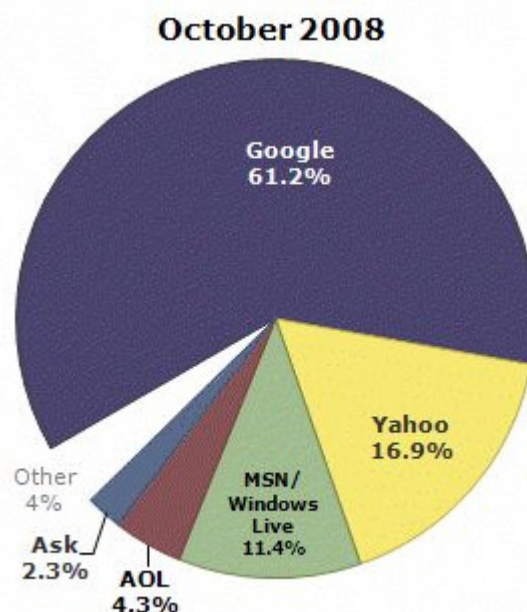
  

	2004	2005	2006	2007
Revenues (\$M)	3,189	6,139	10,605	16,594
YY Growth	390%	92.5%	72.7%	56.5%
Operating Margin (%)	20%	33%	33%	31%
YY Change	-3%	13%	0%	-2%
EPS (in \$)	1.46	5.02	9.94	13.29
YY Growth	256%	244%	98.0%	33.7%

## **BUSINESS DESCRIPTION**

SECTOR: Technology | INDUSTRY: Internet Information Providers

Google is a global technology company that maintains the largest, most comprehensive index of web sites and other online content. Its automated search technology helps people obtain nearly instant access to relevant information from Google's vast online index.



## Top Search Providers for October 2008

Source: Nielsen Online, MegaView Search

Provider	Searches (Millions)	Share of Searches	YOY Growth
All Search Providers	7,775,913	100.0%	-2.0%
Google Search	4,755,493	61.2%	8.1%
Yahoo! Search	1,311,504	16.9%	-12.0%
MSN/Windows Live Search	885,567	11.4%	-19.0%
AOL Search	334,467	4.3%	14.5%

Google has been expanding its efforts beyond the online search category. These initiatives are intended to broaden Google's advertising reach and to attract user activity and registrations. In recent years, it has introduced (among others):

- **Gmail:** e-mail service
- **Google Maps and Google Earth:** traditional and satellite mapping offerings
- **Google Talk:** instant messaging service
- **Google Video:** video service that provides free and pay-per-download content
- **Google Finance:** searchable US business news, opinion, and financial data
- **Google Checkout:** payment service
- **iGoogle:** customizable homepage
- **Android:** mobile Internet software platform
- **Chrome:** open source internet browser
- **Picasa:** photo organization and editing application
- **Desktop:** search application that indexes e-mails, documents, music, photos, chats, Web history and other files
- **Google Apps:** provides hosted communication and collaboration tools for organizations such as small business, enterprises, schools, and groups
- **Youtube:** popular free video sharing Web site which lets users upload, view, and share video clips

These offerings are freely available to anyone with an internet connection. Google generates revenue primarily by delivering relevant, cost-effective online advertising. International sources contributed 51% of revenue in the 2008 third quarter, up from 48% last year.

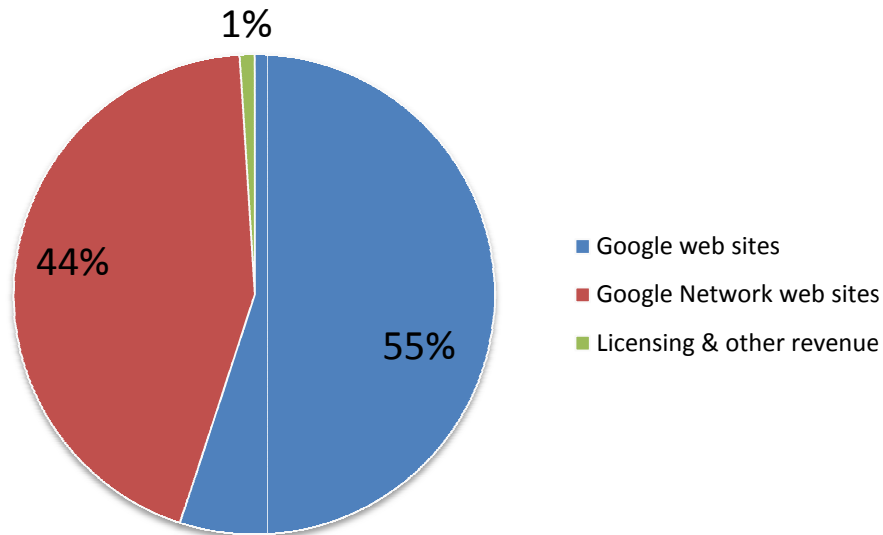
### AdWords Program (Google's advertising program)

Google's advertising program, called AdWords, enables advertisers to present online ads when users are searching for related information. Advertisers employ Google's tools to create text-based ads, bid on key-words that trigger display of their ads, and set daily spending budgets. Ads are ranked for presentation based on the maximum cost per click set by the advertiser, click-through rates, and other factors used to determine ad relevance. This process is designed to favor the most relevant ads. Google is paid when users click on ads.

## AdSense Program (creates Google Network)

Google's AdSense program enables web sites that are part of the Google Network to deliver AdWord ads that are relevant to content on their web pages. Google shares most of the revenue generated by ads shown by a member of the Google Network with that member.

## Revenue Breakdown



## Thesis

I believe Google would be a profitable addition to the MII portfolio for the following reasons:

- User-Focused Design Philosophy
- Superior Technology
- Large Cash Position
- Human Capital
- Open-Source Development
- Attractive Valuation
- Growth of Cloud Computing
- Development of White Space

In addition, I believe Google will diversify the MII portfolio through exposure to the technology sector. The current market conditions provide a great buying opportunity as the shares are currently trading at around 13 times forward earnings.

## (I) User-Focused Design Philosophy

Google's user focus is the foundation of its success. The company realizes this focus is critical for the creation of long-term value and has refused to compromise user value for short term economic gain. Google's core design principles include:

- The interface is clear and simple
- Pages load instantly
- Placement in search results is never sold to anyone
- Advertising on the site must offer relevant content and not be a distraction
- No pop-ups

By always placing the interests of the user first, Google has built the most loyal audience on the web. Its growth doesn't rely on advertising, but rather on word of mouth from one satisfied user to another. The company employs a User Experience team focused solely on adding user value.

## (II) Superior Technology

Google's spending on research and development has grown faster than its revenue, amounting to over \$2.1 billion in 2007 alone. That spending has generated important patented technologies over the years that give Google an edge on competitors:

- **Ranking Technology** — One element of Google's technology for ranking web pages is called PageRank. It is a query-independent technique for determining the importance of web pages by looking at the link structure of the web. The PageRank of a page is the sum of the pages that link to it. Links from important web pages with high PageRank weigh more heavily and are more influential in deciding the PageRank of pages on the web.
- **Text Matching Techniques** — Google's text matching techniques do far more than count the number of times a search term appears on a web page. A simple example is technology that determines the proximity of individual search terms to each other on a give web page, and prioritizes results that have the search term near each other.
- **Sorting Technology** — Internet search companies have the need to store and process massive data sets, such as search logs, Web content collected by crawlers, and click-streams collected from a variety of Web services. Google has the fastest sorting algorithms in the industry. Recently, the Google Systems Infrastructure Team has sorted a record 1 terabyte of data on 1,000 computers in only 68 seconds. Yahoo's fastest reported time for the same data set is 209 seconds. Google's sorting algorithm relies on a cutting-edge map-reduce programming model that supports parallel computations over multiple petabyte data sets of clusters of computers. Microsoft's slower algorithm relies on a *scope* programming model that builds on end-user knowledge of relational data and SQL.

- **AdWords Auction System** — Google’s AdWords auction system prevents advertisers with irrelevant ads from taking top positions to gain exposure, and rewards more relevant, well-targeted ads that are clicked on frequently. Because Google is only paid when users click on ads, the AdWords auction system aligns advertiser interests with Google’s.
- **AdSense Contextual Advertising Technology** — AdSense uses ad targeting technology that allows Google to provide the most contextually relevant ads. The technology employs techniques that consider factors such as keyword analysis, word frequency, and overall link structure to analyze the content of individual web pages and to match ads to them.

### **(III) Large Cash Position**

Google has an enormous cash position relative to others in the industry. Google holds \$14.4 billion in cash, which amounts to \$45.81 cash per share. In addition, the company has no debt. Economic theory suggests companies with lots of cash and leadership positions in their sectors will likely emerge from recession stronger than their competitors and see their shares rebound faster. There are two reasons for this trend.

First, cash-rich companies can use their cash to purchase deeply-discounted companies with attractive products or services. For example, in March of this year, Google acquired DoubleClick, a company that develops and provides Internet ad serving services, for \$3.1 billion in cash.

The second reason is that cash-rich companies are able to continue investing in research and development (R&D), unlike cash-strapped competitors that are forced to cut R&D. R&D is responsible for creating new products to invigorate growth when the recession ends. For example, in the 1970s recession, a host of tech companies developed the videotape, creating a new market and revenue streams that fueled profitability once the recession ended. During the collapse of the dot com bubble, Apple developed the iPod, which drove the company’s recent success.

#### **Industry Comparison (Quick Ratio, Cash Position):**

Google = 8.08, \$14.4 billion

Yahoo = 2.626, \$3.21 billion

Microsoft = 1.526, \$19.71 billion

### **(IV) Human Capital**

Google has developed a reputation in the technology industry as an engineer’s paradise. As such, the company attracts the nation’s best engineering graduates and steals top talent from competitors. Indeed, Google was ranked by Fortune Magazine as the Number 1 company to work for in 2008. The company is able to attract talent and motivate its employees through a variety of perks:

- **Stock Options** — 99% of employees receive stock options as part of their compensation package.
- **20% Time** — Employees are free to use 20% of their time to work on whatever project they would like. If they can't find a project that interests them, Google will provide the funding for a new initiative. iGoogle was developed by engineers in their 20% time.
- **Casual Culture** — Google's culture is employee focused and unlike any in corporate America. Jeans are considered corporate attire. Lava lamps, large rubber exercise balls, and bicycles are found in the lobby of Google's Mountain View headquarters.
- **Free Food** — Google offers employees first class dining facilities. The company's rule is that workers can never be more than 100 feet from food. Elaborate free snack machines and restaurants are scattered throughout Google buildings.
- **Recreation Facilities** — Google's recreation facilities include a workout room with weights and rowing machine, locker rooms, washers and dryers, massage room, assorted video games, Foosball, baby grand piano, pool table, and ping pong.
- **Employee Clubs** — Google funds employee groups, including Black Googler Network, Google Woman Engineers, and GLBT- Gay, Lesbian, Bisexual and Transgender Googlers.
- **Movie Nights** — For blockbuster movies, including "Lord of the Rings" and "Transformers," Google rents out a movie theater and screens the movie for employees and guests.

## (V) Open-Source Development

Google is a leader in open-source development and aims to involve expert users in its design. Open-source software is software for which the human-readable source code is made available. This permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form. Google's new browser, Chrome, as well as its mobile platform, Android, are both open-source. In addition, Google has released the application program interface (API) for many Google products. Since Google products are free, Google is able to take advantage of open-source development. Open-source development spurs rapid development and utilizes the energies of interested, unpaid developers.

Google has an Open Source Programs Office that maintains a healthy relationship with the open source software development community. It releases Google-created code, provides vital infrastructure, and by creates new open source software developers through programs like the Google Summer of Code.

Google Summer of Code is designed to introduce university students to open source development. The program offers student developers stipends to write code for various open source projects. Google works with several open source, free software, and technology-related groups to identify and fund several projects over a three month period.

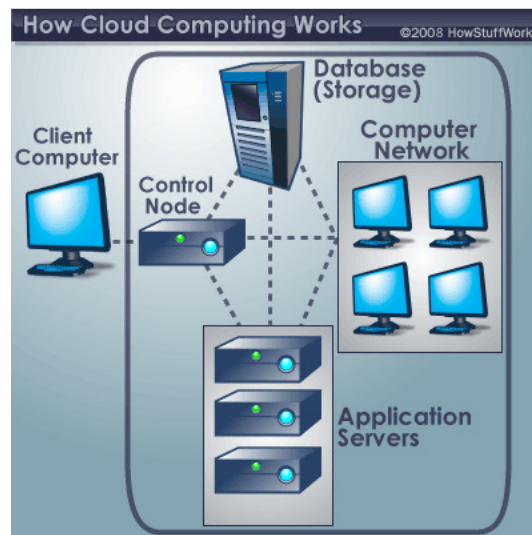
Historically, the program has brought together over 1,500 students with over 130 open source projects to create millions of lines of code.

## (VI) Attractive Valuation

Google's stock has fallen almost 60% this year, despite improving fundamentals. By historical valuation, Google is very cheap. Price to sales has historically ranged between 7.2 and 14.3, but the current price to sales ratio is only 4.2. With a forward Price/Earnings ratio of only 13.2, PEG ratio of less than 1.0, and top line growth of more than 50%, Google is now a value play. Much of the economic slowdown is already priced into the stock. It's quite possible that even if the economy moves further into recession, Google's new initiatives may generate earnings above analyst estimates.

Since Google provides direct response advertising and only charges advertisers when their ads are clicked, I believe Google will be a top-performing Internet stock in the current recession.

## (VII) Growth of Cloud Computing



During the late 1990s, thousands of miles of fiber-optic cable were laid. Fiber-optic cable allows data transmission speeds that approach those of the computer processors themselves. This cable connects computers to a giant network, or "cloud."

Since computers were previously isolated, anytime you wanted to type a document, play a game, or edit a photo, you had to install software on your computer. But with the development of web applications and faster Internet connections, all you need is a computer with an Internet connection. These web applications do not store content on your computer, but rather on a data-center in the "cloud." With cloud computing, computers no longer need hard drives or operating systems. They can simply be Internet appliances. This trend will drastically reduce the cost of computers as well as software.

As the leader in free web applications, Google stands to benefit from this trend. Over 500,000 companies, including GE, Procter & Gamble, have already signed up Google App. Google Apps provides applications that can be purchased and run over the Internet for \$50 per year. Google Apps costs a fraction of a traditional business software suite. The future of the business model involves having users utilize software and computing resources located in Google's servers for a fee, as opposed to having to buy and manage their own software.

## **(VII) Development of White Space (700 MHz)**

On February 17, 2009 American television stations will stop broadcasting in the analog spectrum (700 MHz) and broadcast only in the digital. Each station had been assigned certain channels for their analog broadcasts. The analog spectrum that was used by television stations will therefore become "white space" (or unused space) in February.

Google, along with other technology companies, lobbied aggressively to put the white space to use. To their credit, the FCC recently voted 5-0 in favor of developing the unlicensed use of the white-space spectrum. FCC Chairman Kevin Martin explained, "Opening the white spaces will allow for the creation of a Wi-Fi on steroids. It has the potential to improve wireless broadband connectivity and inspire an ever-widening array of new Internet based products and services for consumers. Consumers across the country will have access to devices and services that they may have only dreamed about before."

AT&T and Verizon bought much of the white space in an auction held a few months ago. However, Google made them agree to "open access" rules that allow white space devices to use free (ad supported) Google services. Therefore, Google stands to benefit as the white space is developed and more devices connect to high-speed wireless Internet.

## **Risks**

### **(I) Competition**

Microsoft and Yahoo are formidable competitors. Microsoft has developed features that make its search engine a more integral part of the Windows operating system and its other desktop software. Microsoft will continue to use its strong position in the desktop software market to compete with Google. The company has more employees and cash resources that Google does. If Microsoft or Yahoo is able to provide better search results or more relevant advertisements, they can cut into Google's market share.

### **(II) Reduction in Spending by Advertisers**

Google generates 99% of its revenues from advertisements. It is therefore subject to cuts in the budgets of its advertisers. Reduced spending by advertisers is a real possibility given the recent economic downturn and its affect on consumer discretionary spending.



### **(III) Ad Blocking Technology**

Technology can be developed that will block the display of Google's ads. Google only generates revenue when users click on its advertisements. Therefore, this technology may adversely affect revenue.

### **(IV) Acquisition Difficulties**

Google has acquired several smaller competitors, such as DoubleClick and YouTube. The process of integrating an acquired company may create unforeseen difficulties and expenditures. Google may also face difficulties incorporating acquired companies into its ad supported business model. Google has yet to realize any significant revenue benefits from its acquisition of YouTube, dMarc Broadcasting, or Postini.

### **(V) Loss of Innovative Culture**

Google's start-up culture has contributed to its success. It fosters creativity, innovation, and teamwork. However as the organization expands and management structure grows more complex, it will be more difficult to maintain the culture.

### **1-Year Stock Chart**



### **Value-Added Research**

The web version of this memo does not include Value-Added Research contacts for privacy reasons.