Markus Herrmann and Erik Luhr

Supervisor: Martin Johanson

Free on the Web!

The Profitability of a Radical Price

Abstract

This thesis examines companies offering their services for free to Internet users, by employing digital free business models. As a framework Chris Anderson's classifications of "free" business models are used. A sample of eleven companies that provide "free" services was selected and divided into four groups. These were search engine, social networking/community, content based and others. Their profitability was then measured in relation to their valuation with the help of P/E ratios within and among the groups. A regression analysis was also conducted to compare profitability of either one of two "free" business models used by the researched companies.

Findings were that search engine and social networking/community companies appear to have profits for the period researched. No strong trend for overvaluation could be found in either of these groups, except for individual companies with high P/E ratios. Neither company within the content based group showed any profits. Their marginal costs were too high but this may change with technological progress. Regression analysis could not show any significant results employing either the "Freemium" or the advertising "free" business model to be more profitable than the other. Significant results could be shown being a content based company and being unprofitable. Comparison between specific companies gave mixed results but network effects appear to create dominant players within each group. Employing more than only the advertising "free" business model seems to be efficient in raising revenue per user for social networking/community companies.

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1. Introduction

There's an old joke about a businessman who gives his products away. The joke goes something like this: A customer asks the businessman: "How do you make money by giving away all of your products for free?" The businessman answers: "Well, I make it up in volume!" At first the business model of the gentle businessman does not make any sense at all. On the Internet it could very well do. To give away products and services has become a legitimate business model on the Internet. This has been going on for quite some time and you can find plenty of examples in our economy. One example of it are daily newspapers such as The New York Times that offer an online version of its content for free, containing the very same information as in the charged printed version. Another example is banks that give away credit cards for free but charge the merchants a transaction fee. Chris Anderson, editor in chief of Wired Magazine and former editor at the The Economist, is one of the main advocates of the concept of "digital free". He recently published a book, "Free - The Future of a Radical Price", where he argues that everything on the Internet will essentially become free and that there are companies that already are or will build their business model around the concept of free. The main reason for that statement is that the marginal cost of offering content and services on the Internet will be close to zero in the near future. This thesis will explore the possibilities of digital free business models and research the profitability and valuations of companies that are using free as their business model.

1.1 Background
Digital Free

The traditional way of conducting business includes an exchange of goods and services in return for money. Today the online market suggests a shift away from this model. Chris Anderson suggests a move of our present economy of mutual exchange of goods and services for money, to an "economy of bits" where digital content is provided for free. (Anderson, C. 2009, p. 12)

On the Internet a vast amount of products and services can be found that are available to the user for free. Everything from social networks to music and video can be accessed at virtually no cost to the user. How is this possible? The simple answer is the low marginal cost to the supplier. When something is digitally created, be it a scanned in picture, a written document or a created program the cost to create a copy is virtually zero. This is a large contrast to the world of atoms were creating a copy of something requires the same amount of material as the creation of the first object required.

The Internet has further enhanced this development. Before the Internet a transfer of something between two computers normally required a physical storage that carried data from one computer to another for example a CDR or a Floppy disk. With the growth of the Internet this is no longer required, data can be spread to a countless number of users without as much as a single floppy disk. That the Internet is a strong driver for distributing free services and that the market is huge cannot be doubted. Out of the ten most visited websites all ten primarily provide free services (Alexa, 2009).

A key concept to explain the emergence of digital free is the theory of the Bertrand equilibrium. It states that in a competitive market the price will eventually equal marginal cost. This means that the price of an item that is sold should equal the marginal cost induced by the seller to create and sell this extra item. According to Chris Anderson technological progress, especially on the Internet, will bring the marginal cost for delivering digital content to zero, and if the Internet is a competitive market this will make the content free. (Anderson, C. 2009 p.172) Technological progress is the key driver to make this happen since crucial elements in the storing and sharing of digital content is computer processing power, bandwidth and storage (with the latter two being especially important for the Internet). When it comes to computer processing Gordon Moore found a correlation between processing power and its price that has proven to still be applicable, it is referred to as Moore's law. The "Law" came about in 1965 he published findings indicating that computer-processing power, the amount of transistors a semiconductor chip can hold, doubles every 18 months for the former equivalent price. A similar trend has been found in the price/performance of hard drive storage, the amount of bytes that can be stored on a hard drive doubles every year. The fastest grower in

price/performance of the three cost elements is bandwidth that doubles every nine months due to technology progression using fiber optic cables to transfer digital content. (Anderson, C. 2009 p.78)

This technological evolution will in turn promote the use of free since the cost of delivering and storing content will decrease. It will go on until it is close to zero, then it is just a question of rounding down and earn money on advertising or selling premium services.

The dot-com bubble

The rise of the Internet in the end of the nineties led to an explosion of companies with less than well thought through business models. These companies promised a whole new economy, their success was largely measured by how much money they were going to earn in the future, not how much money they actually earned. In 2001 it all came to an end as investors realized that the valuations attributed to these companies were completely unmotivated. Most of the companies lacked sufficient business models and had revenue and profits far from what their valuation demanded. Investors fled the technology stocks and the companies with value primarily comprised of expectations disappeared. (Anderson, C. 2009 p. 237)

A lot has changed since then. Dot-com companies hoping for a successful *IPO* today need more than just talk about a new economy to go public. Growing value through promises of future revenues has become harder on the stock market. There is however still a lot being invested in the future prospects of some dot-com companies. A notable trait of several of these companies as opposed to what happened during the last dot-com boom is that they are privately held instead of publicly traded. This allows for a great deal of secrecy about financial information. What leaks are generally valuations of the companies as various venture capitalists buy into the companies in founding rounds. These companies supply different kinds of services and many of them can boast several million users. The common denominator these companies have is not just that they are dot-com companies generally considered to be huge successes; they also provide their services for free to users.

1.2 Purpose and Research Question

Today Internet users can access a whole range of services and products for free. Two necessary questions to ask are: How is this possible? And how *profitable* are *dot-com companies* that provide these online products and services for free? The purpose of this study is to answer those two questions by measuring the *profitability* of a sample of major dot-com "free" companies. When evaluating *profitability* it will be in relation to the *valuation* of the respective company, this in order to find indications of possible overvaluation. History shows that overvaluation is a possibility and the companies could lack profits like their predecessors during the dot-com bubble.

As framework for the study Chris Anderson's classifications of "free" business models will be used. Three sub-purposes are devised in order to study variations in success and their reasons in employing the concept of free:

1. Comparing the *profitability* of companies employing either one of two selected "free" business models in a regression analysis.

2. Compare the *profitability* of groups within the sample in order to research if one group is more likely to be *profitable* or unprofitable than the others.

3. Comparison of *profitability* between specific companies in the sample groups.

(For definitions of the *italicized* words see Appendix 1.)

2. Theory

Research shows that there is more to free than just a price, it changes the way we think about things. An important psychological finding regarding this "concept of free" is that our feelings about free products are relative not absolute. In a case were something that used to cost some money is made free, people tend to have lower expectations of the quality. If on the other hand the product from the beginning has been offered for free we do not feel the same way. (Anderson, C. 2009, p.56)

Research by economist Nick Szabo shows that people who are charged for a product are instantly faced with a mental evaluation of the cost and benefits, that eventually leads to a decision to buy the product or not. In the case of a zero price product these "mental transaction costs" as Szabo calls them are eliminated. The costs for buying a free product therefore become zero and the transaction now only contains benefits. Szabo's findings illustrate that charging a price creates a mental barrier in contrast to a free product. There is however mental transaction costs when consuming a free product. It can evoke environmental concerns, for example creating a surplus of waste, or people may find themselves looked upon as being cheap which is socially disregarded. (Anderson, C. 2009, p. 59) Neither of these aspects are however applicable to "digital free" since, for many online services, "free" is more the rule than the exception, and the pollution effects of Internet usage are neglected by virtually all users.

Hosanger, a professor at Wharton, builds on Szabo's findings by showing how demand for a zero price product is many times higher than the demand for a product at a low price (Anderson, C. 2009, p. 62). Schampanier, Mazar and Ariely confirmed Hosanger findings in an empirical study on zero price effect on personal behavior. Schampanier, Mazar and Ariely conducted an experiment aimed at measuring the difference between an almost zero-priced product and a zero-priced product. The research showed that when people are faced with a choice between two products, where one of them is offered for free, people tend to overreact to the free product. It seems as if zero price not only means a low cost

for buying the product but also results in a higher valuation of the product compared to a product offered in a positive monetary term (price > 0). (Schampanier et al. 2007 p.743)

2.1 Going from free to fee

An empirical study on the subject of digital free covers a company that changed their previously ad-financed service to a two versions service. The free version featured ads and restricted access to the material available, most articles were however still available. The premium version was ad-free and gave access to all material. The company researched provided content of interest to marketing professionals. (Pauwels, K., & Weiss, A. 2008 p.16) The transition from free to fee was successful and led to a net income gain, a loss in growth of free subscribers did however also occur (Pauwels, K., & Weiss, A. 2008 p.28). If these findings are translatable to other free services is however questioned by the authors, for example it is suggested that the younger generation is not willing to pay for anything on the Internet, something that will cause problems for companies that primarily serve young users. This study only covers one company in dept but mentions a competitor that attempted a similar move as the researched company. The competitor failed to raise net income (possibly due to bad pricing). It is also noteworthy that many of the clients that paid for the content were companies that used the research in their business. This study shows that a transition from free to fee is possible, if the findings are translatable to other companies that have their users within the general public is as stated by the authors "questionable". (Pauwels, K., & Weiss, A. 2008 p.29)

2.2 The four "free" business models

Currently only limited empirical research that specifically targets companies with "free" strategies exist, models and classifications are therefore equally rare. Below is a general classification, as suggested by author and editor Chris Anderson:

1. **Cross-Subsidy:** The business model offers services for free to one user group while at the same time earning money from another. This model is employed by for example auction companies that charge money from sellers but not from buyers. (Anderson, C. 2009 p.23)

2. **The Three Party Market:** This business model is an old "Free" model, a publisher provides a free service to one group (users) but earns revenue by selling

the attention of the users to advertisers. Revenue is earned by displaying advertising as the service or product is in use, something that has already been in use a long time in for example commercial radio and free newspapers. (Anderson, C. 2009 p.24) The Internet is full of Three Party Markets, this since ad-financing is very common online. Advertising on the web is generally based on displaying ads next to the actual topic of interest to the user. An advertiser buys a certain number of "views" of their ad on a website. A company that solely relies on selling advertising on its website has revenues equal to *Revenue per thousand page views* times their total page views divided by thousand. *Revenue per thousand page views* is determined by what user group the site is targeting, how big the banner is, where it is placed and the rate of clicks on it. The *Click-through-rate* is a major issue for advertisers wanting to draw traffic to their own site. Research on this subject made by firms' comScore and Starcom has shown that 8 percent of US Internet users account for 85 percent of all clicks on advertising banners and 84 percent of Internet users do not click on them at all (Lipsman, A. 2009a).

3. **Freemium:** When the "Freemium" model is employed a small group of premium users, that get more advanced services or a more advanced version of the product or service, pay and thereby make a basic version of the product available to basic users for free. There are several reasons for giving away the free version. Such as: let users try the product before buying the premium version, grow the number of users and hope to turn the product into a standard or even harm competitors that charge for its competing product. When digital, this is done at pretty much zero marginal cost since copying and distributing most digital content is virtually free. (Anderson, C. 2009 p.26)

4. **Nonmonetary Markets/Gift Economy**: Finally we have what is on the Internet and for digital goods in general perceived as the open source model (see Appendix 1).The development of *Open Source* or "*Wiki*" projects is to a large extent created with motivators such as building reputation, intellectual stimulation and gaining new knowledge and skills (Iansiti and Sarnoff 2006 p.6). This model does not really generate revenue for the creator and it is based more on

cooperation and mutual benefit than actual profit maximization (the products created by the open source movement are however often used for commercial purposes, see for example Iansiti and Sarnoff 2006 p.23) (Anderson, C. 2009 p.27). A popular open source project is the online encyclopedia Wikipedia were users add content to the encyclopedia without getting paid.

There is often no clear distinction between the different models and companies frequently use more than one model to generate revenue. Anderson does not specify any other aspect than how revenue is generated and it is in that context "business model" should be understood.

2.3 Network effects

An important factor on the Internet is Network effects. The theory states that growth in the quantity of individuals within a population that use a product or service promotes further growth in the quantity of users of the particular product or service within that population, this since the benefits of using the product or service will increase if it has more users (Anderson, C. 2009 p.172). On the Internet this is highly relevant, when people for example begin registering on a social community where most of the content is created by the members and thereby most relevant to people close to them. The company behind the website will encourage its users to invite other people they know to join the website. When successful it will allow the website to show ads to more users or improve the odds of selling more of their own products and services. The incentive for members to invite their friends is to create a service with higher relevancy for themselves and their friends. This can explain the "hype" leading to fast acceleration of user growth as witnessed by certain online communities. And since most social communities are free there is no need for those mental calculations that could make friends think twice about joining.

3. Method

In order to measure the *profitability* of companies that pursue "free" strategies as their main business model we will create a sample of companies that consist of some of the most well known "Digital Free" companies. Research will be performed in order to determine the efficiency of each company's strategy and if any common denominators exist among companies that do turn a *profit* as opposed to companies that don't. The two measures chosen in order to determine *profitability* is the latest available *Net Income* and the *P/E ratio*. Both measures require relatively little information and suit the purpose of the study well. For unquoted companies we will use estimated numbers of *Net Income* and the most recent *valuation* or when no plausible valuation exists calculate an estimate (in order to calculate the *P/E ratio)*. The companies will be assessed values according to whether or not they turn a profit. Regression with dummy variables will then examine if there is any link between the employment of advertising (Three Party Market) or Freemium business models of the respective companies and their *profit*. We will also look for apparent differences in *profitability* between search engines, social networks and *content providers*. We are however aware of the weakness of these results due to the relatively small sample of companies. When possible r*evenue per user* and *revenue per thousand page views* has been calculated in order to compare the effectiveness in generating revenue between the sampled companies. (For definitions of the *italicized* words see Appendix 1.)

The primary sources for gathering data will be articles from well-established newspapers, academic papers and when available annual reports from the companies' researched as well as other data presented by the respective companies on their web sites. An important aspect is that several of the companies researched are privately held and therefore not obligated to provide information on earnings and other financial data, their reluctance to do so is probably motivated by competition. The business press is however often able to retrieve information regarding numbers usable for making estimates. By cross-referencing such sources the credibility of the estimates is increased. Our aim is to create

a study that is relevant today and uses as recent material as possible, therefore we have used numbers from the last quarter in 2008 and the three first of 2009 when calculating net income. For the companies were estimations have been necessary the period covered is 2009. Since so little financial information is published about several of the companies in the study the use of estimation techniques is necessary. When selecting between techniques a search for the "least bad technique" led to different choices for different companies. For example some numbers are based upon known ratios of publicly traded companies that run a similar business as the company for which estimation is made. The implication of having to rely on such techniques undermines the research's credibility. Therefore the estimated numbers presented should be interpreted more as indications than facts.

3.1 Delimitations

This thesis will examine profit-maximizing businesses. Open Source projects are generally created with other motives and are therefore left out in this study. In order to have a large enough sample to allow some comparison between business models focus will be solely on companies that use the *Three Party Market model* and/or the *Freemium model*. These two are currently the dominant free business models on the Internet and have therefore been selected. Due to this the comparatively rare *Cross- Subsidy Business Model* is also excluded since an inclusion of one or two such companies would further limit the comparability among the two business models researched.

3.2 Sample

The companies included in this sample have all been selected based on variables such as size, service provided, data available and business model. The biggest emphasis has been on presenting information on publicly known companies that have a substantial amount of users and are generally considered as big successes. It is also a requirement that the company selected offer at least their basic services for free to the public. The reason for choosing major firms follows from the assumption that if not even the market leaders are making profits, then who is? Eleven companies were selected, partly based on the amount of traffic their respective site is generating, this as measured by the website traffic company Alexa.com.

In order to show how often a website is visited on a global scale we included the rank of the companies in our sample (shown in brackets) that are listed on Alexa.com. The website calculates a ranking of websites using a combination of average daily visitors and page views over the past month (observe that the Alexa ranking covers the ".com" address of most sites in our sample and not country-specific domains like ".se" or ".co.uk.") The sample has been categorized into four groups and consists of the following:

Search engines:

- Baidu: The leading Chinese language search engine in the world (8th place).
- Google: The world's biggest search engine (1st place).
- Yahoo: The world's second largest search engine (4th place).

Social networks/Communities:

- Facebook: The world's largest social network (2nd place).
- LinkedIn: The world's largest networking site for professionals (40th place).
- MySpace: Previously the world's largest social network, currently the second largest (14th place).
- Twitter: Market leader in micro-blogging (13th place).
- Xing: The largest career portal in Europe (268th place).

Content based:

- Spotify: A fast growing service for streaming music (N/A).
- Youtube: The world's largest site for sharing video content (3rd place).

Other:

- Skype: Currently the world's largest IP-phone company (N/A).

We chose to research the three biggest search engines in the world as they attract most of the traffic for that service and at the same time offer their services for free. The selection of social networking/community websites follows from the assumption that Facebook and MySpace are the social networking websites with most users today. Twitter was

chosen under the same category since the company is the biggest in micro blogging and show strong user growth. The choice to include LinkedIn as a social networking site is due to it being the biggest professional network in the world in terms of users. Xing is included since it is the dominating professional network for the German speaking part of Europe and the biggest professional network in Europe in terms of users (that Xing is publicly traded was also taken into account). Under "Content based" we sorted companies that primarily serve as providers of "heavy" content like video and music. In order to include a service that offers music streaming Spotify was chosen, it is currently the only company offering this service for free. Youtube was chosen since it is the most widely used site for video content. We deemed it as being too important to leave out when researching digital free, despite the fact that it is a part of Google since 2006. Skype offers free calls between computers as well as selling calls to regular phones, it boasts over half a billion users. Skype has also recently been partly detached from eBay. For the search engines and Youtube it is not possible to calculate *revenue per user* since use of these services does not require registration. We will only calculate a revenue per thousand page views for social community companies except Twitter that can be accessed through a third party application.

3.3 Criticism of the sources

The difference in owner structure composes a challenge when providing financial information for all the companies in our sample. Some are publicly traded others part of a bigger corporation or privately held. The publicly traded companies being Baidu, Google, Yahoo and Xing are obligated by law to publicly announce their earnings and costs in an annual report, hence accurate information was easily retrieved. Other companies have been acquired and are currently part of bigger corporations: Youtube is part of Google, MySpace is part of News Corp and Skype was (until very recently) part of eBay. Since most of the companies do not present financial information separately for these divisions we had to rely on secondary data from the media. Facebook, LinkedIn, Spotify and Twitter are privately held and are therefore not required to share any financial information. Since estimation was required for all non-publicly traded companies the calculations of their respective net income and P/E ratio are naturally less accurate than that of publicly traded ones. The estimates were primarily based on numbers presented in

newspaper articles and therefore their reliability depend on the accuracy of these numbers, this should be taken into consideration when studying the results. When possible we have cross-referenced these sources.

4. Results

4.1 Search engines

4.1.1 Baidu

5.2 percent of searches • Founded in the year 2000 •

Chinese language search engine • Ad-based

Baidu is the leading Chinese language search engine in the world and market leader in China. The company is according to web information company website Alexa.com the 8th most visited Website in the world. The firm offers various search forms and community services similar to the ones offered by Yahoo and Google. Ranging from mail services, mobile Internet to anti virus programs for free (Baidu 2009a). Baidu earns money by letting customers "pay for performance" (P4P). The business model "pay for performance" refers to that customers can bid for a better placement of their links to their websites related to Baidu search results, a kind of ad based model used by most search engines (Baidu 2009b). This is also similar to what Google and Yahoo does. In the Baidu annual report for 2008 the company reported net income for Q4 2008 of $42,3 million. In Q1-Q3 2009 Baidu reported net income of $154,8 million. The TTM net income for Q4 2008 and Q1-Q3 2009 was $197,1 million. We retrieved the market cap of Baidu from Google Finance on 2009-12-18; it was $14,73billion and resulted in a P/E ratio of 74,73 (see Appendix 2 Table 1).

4.1.2 Google

62.4 percent of searches • Founded in 1996 • Search engine, Webmail,

Maps and more • Ad-based

Google is a dominant player on the Internet, ranked the indisputable number one search engine in nearly all countries according to Alexa.com (Alexa 2009). Google offers all of

its services for free to the public and earns 97 percent of its revenue by selling advertising space on the Google websites (66%) and from Google Network web sites (31%). The advertisement is displayed next to search results at Google's Internet Search, e-mail, online mapping, social networking and video sharing services. The remaining three percent of revenues comes from licensing and other revenues. Google is publicly traded and made its IPO on 19th August 2004 (Google 2009b). In the Google interim report for Q4 2008 the company reported a net income of $382 million. In Q1-Q3 2009 Google reported $4,546 billion in net income. The net income for Q4 2008 to Q3 2009 results in $4,9 billion. Google Market cap retrieved from Google Finance on 14th December 2009 was $188,6 billion resulting in a P/E ratio of 38,26 (see Appendix 2 Table 3).

4.1.3 Yahoo

12.8 percent of searches • Founded 1995 • Search engine, Webmail, Finance and more •
Ad-based

Yahoo is the second biggest search engine on the Internet according to Alexa.com. The company offers a vast amount of services e.g. web portal, search engine, mail, news, advertising, online mapping, video and social media websites etc. all are services that are free to the public. Yahoo was founded in 1995 and launched an IPO in 1996. The company had 13 500 employees in the first quarter 2009 and makes most of its money from advertising (Yahoo 2009c). According to the interim report for Q4 2008 Yahoo had a net loss of $303,4 million for the quarter. In the first nine months 2009 Yahoo's net income was $445,0 million. According to data retrieved on the 14th of December 2009 market cap was $21,91 billion resulting in a P/E ratio of 154,7 (see Appendix 2 Table 10).

4.2 Social Networks/ Community

4.2.1 Facebook

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350 Million users • Founded in *2004* • *Social Networking* • *Ad-based, some Virtual goods*

Facebook is currently the largest online community with over 350 million members worldwide. Growth has been fast and after establishing a sizable number of users in the USA it quickly became the largest online social networking community in Europe. The community is free to use and financed through adverting, it is however also possible to buy gifts for other users, costing a dollar each (Facebook 2009a). After smaller previous investments in a series A and B funding by various investors Microsoft came in, in 2007 the software giant invested $240 million in Facebook getting a 1,6 percent share and the right to sell ads on the site outside the USA. This investment valued Facebook to 15 billion dollars, around 500 times its estimated revenue for that year, which was estimated to about 30 million (Cimilluca, D. 2007). After this valuation significantly lower estimates have been the rule. In 2008 for example, employees reportedly sold shares that implied a valuation of 3,75 billion. It is noteworthy that employees chose to sell shares since stock sales in technology startups are unusual (Ante, S.E. 2007). In May 2009 Facebook received $200 million from Digital Sky Technologies for *preferred stock* gaining 1,96 percent share in Facebook. Facebook has in total received $600 million in investments by various investors (Deagon, B. 2009). As can be seen from Graph 1, the valuations have varied over the years.

Facebook Valuation
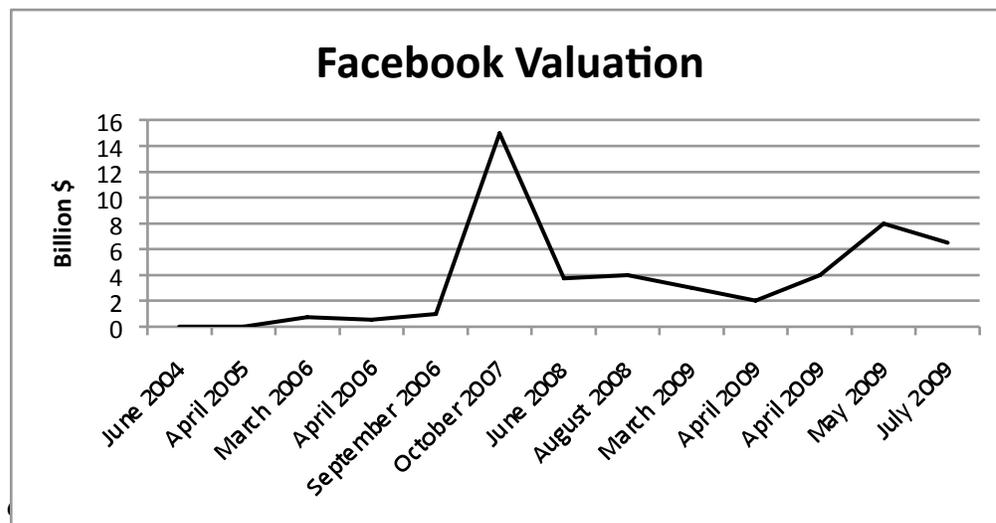
Generating revenue from the massive number of users has however proven to be hard. And if generating revenue is hard in the USA and Western Europe it is nothing compared to were Facebook currently has it's strongest growth, the developing world. Facebook is growing strongly in countries like Turkey and Indonesia but it is plagued by the fact that advertisers are not prepared to pay much for users in these areas, buying power is simply too low. This has sparked speculation about "how fast the company is losing money" and if it will be forced to solicit another round of investment. In March 2009 the company stated that "we will be profitable next year", this was followed by the CFO leaving the company. (Stone, B. & Heft, M. 2009)

The latest statements from insiders about the company have however been positive. Marc Andreesen, a Facebook board member and founder of Netscape, have stated that Facebook revenue 2007 was $150 million, 2008 about $350 million and in 2009 is expected to be $500 million. According to Andreesen Facebook could make one billion in revenues 2009 but is prioritizing user growth instead of profit maximization. He further pointed out that "Facebook will make billions in the next five years to come" (Lawsky, D. 2009a). Justin Smith, editor of the website "Inside Facebook", expected revenue for 2009 between $500 million and $550 million in line with Andreesen statement. The main source of income will come through advertising and about $70 million will be *micropayments* (see Appendix 1) for *virtual goods* according to Smith

(Deagon, B. 2009). Another interesting thing to notice was that Facebook's CEO Mark Zuckerberg announced on the company's website that they had become cash flow positive in the second quarter 2009, which means that Facebook is now earning enough revenue to cover all of its daily expenses (Learmonth, M. 2009B).

We took the revenue estimate of $550 million that several sources posted as likely (see Appendix 3) and calculated a possible net income for 2009. The result was based on a profit margin of 31,12 percent retrieved from Japanese Social Community Mixi. The Japanese social community also generates most of its revenues through advertising and was therefore chosen. This gives an estimated net income of $171,16 million. Being aware of the fact that our calculated net income may be a bit high considering that Facebook has just turned cash flow positive. There are not a lot of publicly traded companies with comparable business models so Mixi was one of few options available, it was deemed better than an outright guess. With the most recent valuation of $6,5 billion we calculated a P/E ratio of 38,0. A calculation of revenue per thousand page views based on $550 million in revenue and 260 billion page views per month gives a number of $0,176 (see Appendix 2 Table 2). This is a low number but it can be assumed that Facebook is not able to sell ads on all of its sites. According to the calculations the revenue per user is $1,57 .

4.2.2 LinkedIn

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50 Million users • Founded in *2003* • *Networking, Career building* •
Freemium and Ad-based

Former PayPal CEO Reid Hoffman founded LinkedIn in 2003; today it has over 50 million members reaching more than 170 industries in over 200 countries. The company aims to enable its members to build a professional network of trusted contacts. The idea of LinkedIn is that you as a member are able to use your professional network in order to get access to the right people for work related purposes e.g. gain expertise on a subject or find a way into a company of interest. This professional approach has attracted other

users than social networks aimed at younger people, the average LinkedIn member is 41 years old and has an annual household income of $109 000. (LinkedIn 2009a)

Membership for a basic account on LinkedIn is free of charge. The company also offers three forms of premium accounts to its members, all with subscription fees. The premium account user is provided with more tools to search and reach members outside the member's own network. (LinkedIn 2008b) It is however estimated that less than one percent are premium users (Economist 2009).

Between 2003 and 2008 LinkedIn has brought in funding in five separate rounds amounting to a total of $103 million. The capital comes from venture capital firms and the last infusion was made on the 22nd October 2008. (Baker, S. 2008) The biggest investment was made by Bain Capital in June 2008 of $53 million valued LinkedIn to $1.015 billion (Waters, R. 2008).

LinkedIn is widely seen as a success story among the social networks. This is attributed to its success in generating revenue, something that has proved difficult for social networks in general. The fact that the average user is high in income and influence allows the site to charge more than most when it comes to selling ads. (Madway, G. 2008) In an interview with current CEO Jeff Weiner in October 2009 he stated that staff is expected to increase by 50 percent during 2009 and ad sales are up 50 percent year over year. It is estimated that LinkedIn has revenue of around $100 Million per year. (Lawsky, D. 2009b) Similar numbers have been suggested by former LinkedIn CEO Dan Nye that stated: "LinkedIn will earn revenue of $75-100 million in 2009" (Ricadela, A. 2008). We made our own calculations of LinkedIn's revenue based on numbers from competitor Xing (that is publicly traded). According to these rough calculations LinkedIn will have around $99,03 million in revenue in 2009, very close to what the CEO stated in the interview mentioned above. A calculation of the P/E ratio using the valuation of $1.015 billion divided by the net income as calculated by us to $11,69 million gives a P/E ratio of 86,86. The revenue per user and the revenue per thousand page views is 1,98 respectively 4,85.

4.2.3 Myspace

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125 Million users • Founded in 2004 • Social Networking, Music Sharing • Ad-based

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MySpace is a social networking site primarily profiled towards music-interested users. The site allows the users to create a personal profile, share photos and videos. It is being marketed as the world's largest music community (MySpace 2009). In October 2005 News Corp acquired the site for $580 million (Segal, J. 2009). After the acquisition Rupert Murdoch, CEO and major shareholder of News Corp closed a three and a half year search advertising deal worth $900 Million with Google. The deal guaranteed MySpace $900 Million in revenue from Google for the given period as long as Fox Interactive Media, MySpace's parent company, meet certain traffic requirements (Goldsmith, J. 2009). The advertisement deal expires in June 2010 after that Google and MySpace will renegotiate the partnership deal (Teather, D. 2009).

In News Corp's first-quarter 2009 interim report it was revealed that MySpace's revenue was decreasing since it had not met the minimum guarantees in its search deal with Google. At the same time MySpace revealed that it was losing traffic (Goldsmith, J. 2009). Despite the problems MySpace is facing the site has brought in $1,6 billion in revenue the last three years. Most of MySpace revenue is coming from its advertising deal with Google. Google has however already announced that it will only renew the deal at a far lower price than before (Segal, J. 2009). According to Pali Capital (a financial service firm) the Google advertising deal might only be worth half as much or according to other estimates 75 percent less, when renegotiated (MacMillan, R. 2009). If the partnership would be ended June 2010 MySpace might face annual losses of a $100 million (Segal, J. 2009). Thereby leaving the company unprofitable.

In July 2009, as a response to the declining profits, MySpace announced that it would cut 300 jobs in their international division that consisted of 450 employees. A week earlier MySpace had announced that it would cut 30 percent of their U.S. staff resulting in 420 jobs cut in the company's most lucrative market (Lefkow, C. 2009). The problems faced

by MySpace was formulated by Debra Aho Williamson, an analyst with researcher eMarketer, who stated "MySpace ended up not being the leader that it wanted to be in the social-networking realm, on the tech front, on the ad front -- and now on the usage front," This statement was prompted by the fact that Facebook had surpassed MySpace in the USA in June 2009 according to ComScore. If it is at all possible to stem the decline and regain market leadership is yet to be seen. History does not provide much hope, the social network scene has seen several communities rise to become market leaders and then be completely overtaken by "the next big thing" (Chmielweski, D.C. & Sarno, D. 2009).

In our calculation of Myspace revenue we have assumed that Myspace get a guaranteed $300 million from it's partnership deal with Google in 2009. The rest of the company's sources of income come from other advertising on the site. We estimated the advertising revenues to be $195 million due to estimates made by research company eMarketer that MySpace will earn $495million in 2009 (Chmielweski, D. & Sarno, D. 2009). We used the same profit margin of Mixi (31,12%) as we did with Facebook to estimate MySpace's net income to $154,04 million for 2009. We calculated the revenue per thousand page views to $1,53. The revenue per user for Myspace is $3,96. For the estimate of Myspace's value we performed calculations using Facebook's value per user, resulting in a valuation of $2321,43 million. The calculation of a new valuation for MySpace was necessary, since the last valuation ($580 million) from when News Corp acquired MySpace in 2005 was no longer plausible. The new valuation makes a comparison with the other companies in our sample more accurate. The assumption to use Facebook value per user multiplied with MySpace user number in order to estimate MySpace valuation follows the assumption that Facebook is a social community that matches the services provided by MySpace. From this Myspace P/E ratio is calculated to 15,07 (see Appendix 2 table 5).

4.2.4 Twitter

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55 Million users • Founded in 2006 • Social Networking and Micro-blogging • Selling search access, some Ad-based

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Twitter is a fast growing community based on short text messages so-called "tweets". A user writes his or her tweets and follows other users tweets, celebrities and friends alike. The service has 55 million users and for long it was not clear how it would earn revenue (Lashinsky, A. 2009). The company has been reluctant to include regular advertising banners on the site and it is not certain that this would do the job anyway, this since the Twitter streams are often accessed through a third party application that does not require users to enter the site (Fine, J 2009). The first signs that revenue has to grow to cover costs were seen when in April 2008 Twitter was launched in Japanese. The site carried an advertising banner, something that does not exist on any other Twitter site (we confirmed this finding on December 4, 2009 when the Japanese version carried a banner and the English one did not). Furthermore in August 2008, the maximum number of connections users in the United States could have was reduced to 2000. This was followed by a removal of the option to send outbound messages to cell phones in all countries except USA, Canada and India (Beaubien, G 2008).

In September 2009 Twitter confirmed that the company had raised $100 million in additional funding, the new funding valued Twitter to $1 billion (Stone, B 2009b). The company is still described as pre-revenue and according to the founders it does not plan to introduce large-scale advertising until 2010 (Stone, B 2009a).

Well into the year 2009 it appeared as if Twitter could not possibly be profitable. That advertising banners are only displayed on the Japanese version limits the possible revenue from this source. The cutbacks mentioned above also signals that current revenue was not covering the cost associated with these services. We estimated the revenue from the Japanese Twitter site to $61248 annually, hardly enough to run the company (see Appendix 2 Table 8.). This did however change as news of search deals with both

Microsoft and Google was announced (see Appendix 2 Table 8.). The deals reportedly gives the company $25 million in revenue for 2009 and according to sources familiar with the matter a small profit for the year (Ante, S.E. 2009). A calculation of the P/E ratio results in a number of 390. Twitter's revenue per user is $0,46. A result for revenue per thousand page views was not performed due to the fact that Twitter can be accessed through third party applications, this would make the result misleading.

Something worth noticing is that Twitter just like Facebook currently has its strongest growth outside the United States and the number of users in the rest of the world outnumbers those in the USA 2 to 1 (Stone, B 2009a).

4.2.5 Xing AG

8,31 million users • Founded 2003 • Professional social networking •

Freemium and Ad-based

Xing AG is just as LinkedIn a professional social networking site; the difference being that Xing is the market leader in the German-speaking countries. The company enables professionals to create their own profiles and build their own networks that they can use for several work related purposes. Xing AG offers its members a free basic account or a paid premium account with more advanced services. About eight percent of all members are premium members (662 000) that pay a monthly subscription fee between 4,95€ and 6,95€ (30th September 2009). In December 2006 Xing successfully launched an IPO and is now publicly traded (Xing 2009a).

The four sources of revenue are premium subscriptions, "Jobs", "Best Offers" and advertising. Subscription fees are Xing primary source of revenue, in the first three quarters of 2009 Xing generated €27,82 million from 662 000 premium members (30th September 2009). The second source of income "Jobs" is revenue retrieved from Xing's job portal that it offers to members. The third stream of revenue is "Best Offers" where companies pay to market their product and services on the Xing.com website. "Best Offers" and "Jobs" are summed up and renamed e-commerce in our calculation (as in the Xing interim reports for 2009) and generated €4,876 million in Q4 2008 and Q1-Q3

2009, the fourth source of revenue, advertising generated €1,802 million in revenue in Q4 2008 and Q1-Q3 2009 (see Appendix 2 table 9).

We had to make separate calculations for Q4 2008, since Xing does not account for that period separately in the annual report for 2008. The fourth quarter results are therefore calculated by subtracting the values from the annual report 2008 results with values from Q1-Q3 2008. This gave TTM total revenue of €43,391 million. The net income for the period was €5,118 million resulting in a profit margin for the period of 11,8 percent. Xing's market cap of €159,61 million was retrieved on the 15th of December 2009 from Google Finance (Google 2009e). Xing's P/E ratio therefore becomes 31,2 (see Appendix 2 table 9). Xing's revenue per user and revenue per thousand page views is 7,87 respectively 13,39.

4.3 Content based

4.3.1 Spotify

Founded in 2006 • Music Streaming • Freemium and Ad based

Spotify is a downloadable program that streams music, currently around six million songs are available to users. The streaming service is free as long as a user can stand ads approximately every 15 minutes. There is however also a premium version that cost £10 a month (UK). Premium users don't have to listen to ads and get to download up to 3333 tracks to their computer and use them in offline mode as well as transfer them to an iPhone or a mobile phone running the Google OS Android. (Arthur, C. 2009a)

There has been a lot of debate about the sustainability of Spotify's business model. Today the absolute majority of its users do not pay for the premium version; instead they stay with the ad-supported free version. According to research firms familiar with the business Spotify would require somewhere around 5-10 percent of its customers to migrate to the premium version in order to be profitable. (Sonne, P. 2009)

We have performed a calculation on the profitability of Spotify on the UK market. The basis for this calculation is the costs of a competitor in the UK market, the competitor

called We7 offers a paid version similar to that of Spotify (Arthur, C. 2009b). The choice of We7 to calculate Spotify's net income and valuation follows the assumption that the company is providing similar services on the UK market.The difference between Spotify and We7 is that while We7 offers a limited amount of songs to be played for free on their website and the rest has to be bought, Spotify offers ,in their basic free version, almost all songs in their database for free. According to our calculations Spotify should make a loss of around £16 million each month in the UK alone (See Appendix 2). This is of course not sustainable no matter how strong it's funding is. The major share of Spotify's cost is the high rates it has to pay to record labels in order to stream music to non-paying users. The premium version is according to our calculations a high margin business but the money made from it is simply not enough to cover the costs incurred by streaming music for free through the ad-based version.

This is however not the whole story since some of the major record labels as well as several of the minor ones on the European market hold equity stakes in Spotify. Understandably it would encourage these labels to share their music at a discount. By doing so the labels are not only hoping to earn revenue from Spotify when more users migrate to the premium service but also decrease the illegal spreading of their copyrighted material. Such reasoning follows from that if more users choose Spotify they are less prone to download and share illegal mp3 songs. They simply don't need to anymore since they can access the music for free with the free version of Spotify (Arthur, C. 2009b). Financial Times published a valuation of Spotify from a funding round in August 2009. The round gave it a value of $250 million (Menn, J. & Bradshaw, T. 2009). We choose not to calculate a P/E ratio for Spotify due to the misleading result occurring at a net loss. The same holds true for the revenue per user and revenue per thousand page views.

4.3.2 Youtube

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*30 billion Page views November 2009 • Founded in 2005 •
Video streaming and sharing • Ad-based*

Youtube is the biggest website for sharing video content online. Users all around the world upload and stream video content. Both the amount of content and number of users has grown at a very rapid pace. The content is a mix of privately generated content and copyright protected material that users upload with or without permission of the rights owners. In October 2006 Google acquired Youtube for $1,65 billion. The site had not yet produced any profit (Weinman, J. J. 2006). According to Google CEO Eric Schmidt Youtube was only worth $600 to $700 million at the point of acquisition but he believed it to be a strategic acquisition to get access to Youtube users quickly (Olszewski, P. 2009).

Youtube is known to have experienced problems with selling advertising space, this since it is hard for the site to show advertisers in what context their ads will be displayed. If the site had more professional copy protected material it would be easier. A severe hit to Youtube's chances for earning revenue from this did however come about when two major corporations that provide content set up a joint site. The site is called Hulu and features content from companies NBC Universal and News Corp (Disney joined later (Frommer, D. 2009b)). The site is currently only available in the USA but talks with British content suppliers have been initiated (Kiss, J. 2009). According to Arash Amel, an analyst at research firm Screen Digest estimated Youtube revenue 2008 was $114 million with no gross profit compared to Hulu's $65 million revenue and $12 million in gross profit for 2008, and this for a company that has a user base less than $1/10^{th}$ of Youtube's. The difference between the companies is that while Youtube can only put advertisement on 3-4-percent of it's content Hulu can put advertising on all its content (Lyons, D. 2009). The state is further worsened by the demography of the Youtube users. The site currently has its strongest growth in the developing world were ad revenue is especially hard to generate but the cost of streaming video is no less than in the developed world (Stone, B. & Heft, M. 2009).

In 2009 profits still appears to be far away, Credite Suisse estimates that Youtube will pay $300 million for broadband in 2009. This together with an estimated $240 million in revenue implies that the site still want be profitable, just the cost of broadband appears to be hard to cover with the current revenue (Spangler, T. 2009). The research firm RampRate performed another calculation of Youtube's result in 2009. According to them Credite Suisse had overestimated Youtube's broadband cost significantly. Apart from the difference in estimation of broadband costs the two calculations did not differ very much (Greenberg, T. et. Al. 2009). This led us to using averages of these two calculations for all variables except cost of broadband were we made our own calculations (See Appendix 2 Table 11). Our calculations are based on low and high estimates of Youtube's bandwidth cost per terabyte made by RampRate. These numbers were inserted into a formula designed to measure how many terabytes Youtube uploads per month. Our results do predict that Youtube is making losses but they do not appear to be of the same magnitude as suggested by Credite Suisse. We estimate losses ranging from $159 to $276 million per year. Calculation of a P/E ratio results in a negative number due to the loss.

4.4 Other

4.4.1 Skype

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521 million registered users • Founded in 2002 •
IP telecommunication technology, chatting • Freemium and Ad-based

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Skype is a software application that enables people to make free video and free voice calls, send instant messages and transfer files between users. Broadband is required in order to access the service (Skype 2009a). While calls over the Internet as well as calls to some free-of-charge numbers in certain countries are free of charge, Skype charges a fee for calls to other landlines and calls and text messages to mobile phones (Skype 2009b).

In September 2005 eBay acquired Skype for $2,6 billion paid in cash and eBay stock. Sellers were along with venture capitalists the founders Niklas Zennström and Janus Friis (eBay 2005). This acquisition was however not lasting. On November 19th 2009 eBay completed the sale of 70 percent of Skype to an investor group led by venture capitalist

fund Silver Lake. The reason for selling Skype was that eBay had failed to connect it to its other operations in a useful way. The deal valued Skype to $2,75 billion with eBay keeping 30 percent of the shares (eBay 2009).

Calculations on Skype's profit were based on eBay's annual report for 2008. There revenue is presented separately for Skype so it required no calculation. This does however not apply to the costs; they had to be separated from eBay's total costs. This was achieved by estimating that Skype would be as large a part of costs as it is of revenues (Skype makes up 7,8 percent of eBay's total revenue). This gave a net income for the year (TTM Q4 2008 – Q3 2009) of $108,9 million. A calculation of the P/E ratio was made using the valuation of the service made in 2009 when 70 percent was sold to the investors mentioned above. This results in a P/E ratio of 25,3. The revenue per user is $1,25. (see Appendix 2 Table 6)

4.5 Regression model results

Regression was employed in order to find any significant relationships between the variables in our data set. Regression was tried with P/E ratios as Dependents with each of the following as dummy-independents: 1. Being a search engine 2. being content based 3. using Freemium 4. using only Advertising (all companies sell some form of advertising) or 5. being a social network. None of these independents were significant on the five percent level. Skype that is categorized under "other" was not researched separately since the group only contained one company and comparison would be misleading. The same independents were used with a dummy of "being profitable" as dependent. This produced a perfect negative correlation with "being content based" since neither of the two content-based companies indicated profitability. Results are summarized in Table 1, the values displayed in the last three numeric rows are the outputs from the second regression with "being profitable" as dependent, the outputs are placed below each respective independent.

In order to find out how the valuation is related to net income a simple regression was performed on these series. At first a strong relationship appeared (a positive relationship significant on the 0.00 percent level). This did however change when Google (a strong outlier in both valuation and net income) was removed. A new regression was performed;

this time the relationship was not significant. The output is shown at the bottom of the column labelled "Net Income". Graph 2 shows a scatter plot of net income vs. value (Google excluded). As can be seen from the graph there is no clear relationship between value and net income. Such a relationship could be expected if valuations were based on the current profitability of the companies in the sample.
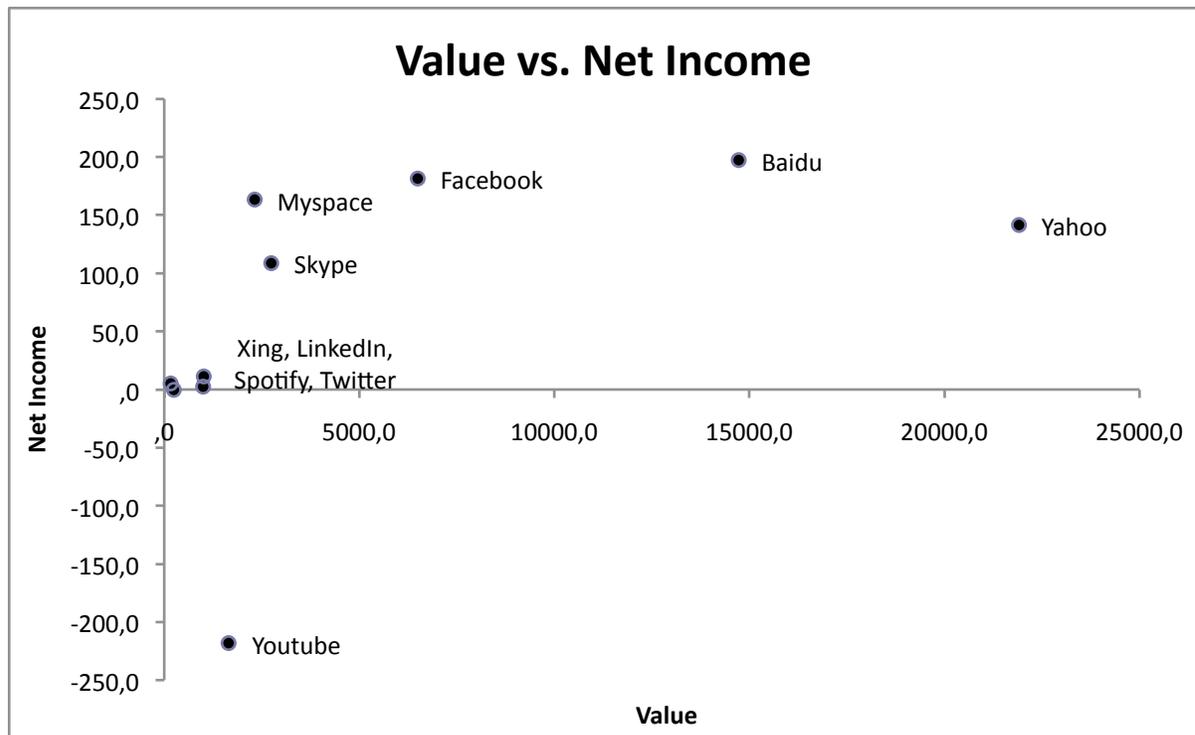
Value vs. Net Income

Graph 2. Valuation of the companies plotted against their respective Net Income (Value in million $, Net Income in million $)

Company	Net Income	Valuation	P/E	Profit	1. Search	2. Content	3. Freemium	4. Ads	5. S.N.	Notes
Baidu	197	14 730	75	1	1	1	0	1	0	
Facebook	182	6 500	36	1	0	1	0	0	1	
Google	4 929	188 600	38	1	1	1	0	1	0	
LinkedIn	12	1 015	87	1	0	1	1	0	1	
MySpace	163	2 321	14	1	0	1	0	1	1	
Spotify	-1	250	N/A	0	0	0	1	0	0	1
Skype	109	2 750	25	1	0	1	1	0	0	
Twitter	3	1 000	390	1	0	1	0	0	1	
Yahoo	142	21 910	155	1	1	1	0	1	0	
Youtube	-218	1 650	N/A	0	0	0	0	1	0	2
Xing AG	5	160	31	1	0	1	1	0	1	
Beta Coef	0,53/0,99*	-	-	-	0,29	1,00	-0,13	-0,43	0,43	
R-Square	0,28/0,99*	-	-	-	0,08	1	0,18	0,02	0,19	
P-value	0,11/0,00*	-	-	-	0,39	0,00	0,70	0,9	0,19	

Notes

1. NI of Spotify set to -1 due to uncertainty of calculation.

2. Youtube valuation set to the price Google paid for it due to lack of more recent valuations.

*Google Excluded/Google Included

Table 1. Summarization of numerical results

5. Analysis and Discussion

Search Engines

The search engines in our sample have the highest market caps of all companies we have researched. The business model of the search engines works great with advertising, they know what people are looking for and can charge companies for a spot high up in the search results. Search engines are simply perfect for the Three Party Market model, users are looking for something, and advertisers pay in order to be what they find. Compared to the other groups in the sample that has a harder time when integrating ads with their services the search engines appear to have found just the right model for revenues. The selling of search listings reminds of a Cross-Subsidy, companies pay for high listings and users search for free.

By offering services like mail, maps and finance tools they are able to gather a great deal of information about users and can therefore match ads to them better. These extended services also help in driving traffic to the key revenue source, the search engine itself. All three companies have clear business models and they are publicly traded so there is little secrecy about how revenue is generated. Since they are not primarily providers of content the costs related to this are limited. All three search engines predate the dot-com bubble and when comparing them to others in our sample it could be argued that they belong to a different generation of dot-com companies. They are all significantly higher valued than the other companies in the sample. Their P/E ratios do however not show any relationship, with Google's P/E ratio being almost half of that of Baidu's and a quarter of Yahoo's. It is very well possible that Google is undervalued compared to its competitors, the company is market leader in most of the world and known to be highly innovative. Due to network effects and the economies of scale that arise as these companies grow the market for web search is expected to continue to be dominated by a few major players, or only one. It appears as if though Google is moving towards complete domination in the field of Internet search. Google's profits and market cap completely dwarfs the two

competitors included in the sample. Baidu dominates the large Chinese market but in the rest of the world Google seem unbeatable.

Social Networks

Having primarily user-generated content like the social communities Facebook, MySpace and Twitter do is a great way to get content for free from users, and it is content that is highly relevant to friends of the user. The friends will start using the social community and draw more friends that will further increase the value of joining the social community in question as explained by the network effects earlier. There can be no doubt about that users value their social communities a lot. They spend a lot of time using them accounted for in number of page views these sites get by users and there is content relevant to them there. So far it sounds good but what about generating revenue?

Social Networks are not optimal for advertising; people use it to connect with their friends, not because they want to buy something (then they use Google to search for it). A "world of atoms" example will explain the difference between search engines and social networks as advertising tools. The search engine could be compared to a map that you use to find stores when you are out shopping, where the stores that have paid the most are the easiest to find. The social networks could be compared to drinking coffee with friends, chatting and looking at holiday pictures. Unfortunately the photo album is full of ads for stuff that is not interesting for the user at the moment as the reason for looking in the album was not to buy anything. And as if that was not enough someone is running around the table flashing a banner that advertises stuff for sale. This example explains why social networks do not generate the large revenues from advertising like search engines do.

The fact that so few users click on advertising banners is a further worry for these companies that boost so many users and page views. For market leader Facebook the revenue per user generated is currently $1,57, rather disturbing since Facebook.com is the second most visited website in the world. The website has page views amounting to 260 billion per month and 350 million users. The company may be profitable but revenues appear low for a website with this amount of traffic. MySpace success in generating ad

revenue was most likely an anomaly, Google was not aware of the relative inefficiency in generating ad revenue from social networks when it signed the ad deal. There is however a lot of potential in Virtual Goods, Facebook currently only offer tiny gifts but the possibilities are much bigger, creating some kind of non-free premium account from which it would be possible to upload high quality images or get more options for customization would be one way to go.

Neither of the two companies are deemed as overvalued but the following should be taken into consideration: History shows that long time domination of a particular social network is unlikely. Users have generally not invested anything more than their time in the network and are therefore not reluctant to join "the new thing" as there are no mental transaction costs to open an account on a competitor's site. Facebook is adaptable but if migration to a competitor takes off, the network could end up as MySpace. It is however not the switching that is the largest worry when it comes to users, if Facebook or MySpace begin charging for some services in a Freemium way or grow their supply of virtual goods a competitor that offers those services for free could arise. And just as research shows the free option will be the first choice. The current leaders need to keep their free versions uncompromised by premium ones, but if successfully implemented the addition of revenue sources could reduce the need for annoying ads on the sites. It is however important that a premium version offers something very different from the basic version, social networks are traditionally free and users of the free version expect high quality too.

When it comes to Twitter it appears as if they have at last found some kind of business model, even though we do not exclude the possibility that it came about by coincidence. The problem as we see it is the complete dependency upon Google and Microsoft, today they have a deal that at least appear to cover Twitter's costs but this could change rapidly. Both Google and Microsoft have a history of overpaying, Microsoft for Facebook and Google for Youtube and the MySpace deal. Its P/E ratio is not a very useful indicator since the company is so young, if it could make more out of its user base remains to be seen. Twitter is like the other companies in this group involved in different funding

rounds. Such need for additional capital hardly signal well thought through business models.

Compared to the three mentioned above niche networks like Xing and LinkedIn have stronger business models and several revenue sources, only 25-30 percent of revenue come from advertising and they are therefore not depending as heavily as other social networks on generating ad revenue. The premium audience also helps when selling ads as more information can be retrieved and ads can be targeted and made more relevant to the user. The important challenge for professional networking sites is to keep the free version relevant and useful and at the same time convince the users of the advantages of a premium membership in order to boost revenue. Xing has been more successful in turning free to fee members with around eight percent of their users paying for the premium version compared to LinkedIn were only one percent are premium users. Xing has a very high revenue per user of $7,87 something that could probably be explained by its audience being not only a premium one but also the strict focus on the German speaking countries, all which have high buying power.

As can be seen for professional networking sites, the users are on average older and more influential. Such users generally earn more money and have less time to invest in avoiding payment. A paid version of content at a premium quality saves time and effort. The opposite is true for younger users that have a lot of time but little money as can be applied to Facebook, MySpace and Twitter that have on average younger users. Both LinkedIn and Xing make excellent use of Freemium. The cost to ad more users is virtually zero, neither site host images or videos of the users so the content requires very little bandwidth and storage. And the free users are for LinkedIn what the premium users pay for, they pay for searches and profile views of free users that they could be interested in for work related purposes.

Content based

The companies in this segment are those that should be the primary beneficiaries of Moores law and the similar relationship found for bandwidth and storage. The services they offer were just a few years ago impossible due to high costs of bandwidth and

storage, if the broadband was at all fast enough to stream music or video. As the law predicts speed has increased greatly and costs have plunged. Speed is now sufficient to use these services but bandwidth costs have however not fallen enough. Neither Youtube nor Spotify are according to our estimates earning a profit. Both of them easily attract users since they are free of charge but both are struggling to cover their costs. For Spotify it is the license costs to record labels. They are anticipated to be high but not as high as for their competitors. For Youtube it is the cost of streaming video content that eats its insufficient advertising revenue. Youtube has a hard time matching ads with their user generated content, not even Google is successful in selling ads to the main part of Youtube's material. The problems are similar to those faced by social networks, users don't go to the site for shopping.

Spotify is pursuing a Freemium strategy, which is great as long as the cost for providing the free version is close to zero. Whether or not Spotify is allowed to stream music to non-paying users for pretty much nothing is up to the record labels and can only be speculated about. Marginal cost of supplying the free version to users should be zero for a successful Freemium company, but as our calculations clearly show it is not. This makes Spotify a bit of a "bad" Freemium business.

The only significant result of the regression model was that this group of companies was unprofitable. Strong earnings are however unlikely for a site like Youtube, this since the only source of revenue is advertising and to find other sources than advertising is key to survive on the Internet. For Spotify it is about increasing the number of premium subscribers. The problem for Spotify is that its users might be young and unwilling to move from free to fee. This could change as the current users grow older and get richer.

The business of supplying content is however one for the future due to the decrease in costs for bandwidth and storage. The fact that Spotify is the only provider at the moment that offers its basic version service for free will attract more users due to network effects in the years to come. At the same time it will harm competitors that offer similar services but for which users have to pay for. This as users will value free product more than a service that they will be charged for in line with Hosanger and Szabo findings.

Other

Skype has proven that it is possible to attract many users and at the same time exploit the possibility to get paid along with it. Although relative to how many users Skype has at the moment (521 million) our calculated net income of $108,9 million is relatively small. The revenue per user is 1,25, even less than for Facebook. Skype is a good example of how hard it is to make large profits when offering free services to the majority of users. But one should nevertheless not underestimate the force of all the free users when attracting new paying users. With registered accounts amounting to one twelfth of the world's population it should however be possible to earn more revenue than today. The P/E ratio speaks for a valuation that is not overheated compared to its net income calculated earlier. As the world's biggest provider of IP-phone services network effects can probably explain a great deal of its rise to domination. The business model to charge only for calls to landlines and for sms and calls to mobile phones is however a model that will not be sustainable in the future. Other sources of revenue such as ad banners are useless as the user is not interested in watching advertising while making a call and will feel disturbed and might abandon the service. The fact that net income is low could partially be explained by Hosanger and Szabo findings that users value a free product or service higher than a service they need to pay for and will therefore try to avoid using the option to make paid calls. The usage of the free service is much more appealing as there are no mental transaction costs attached to it.

Overvaluation

Several of the researched companies have high P/E ratios, indicating that they have high valuations compared to their profits. We assume that this is due to high expectations on behalf of the investors; many of the companies are after all close to being start-ups. One thing though is for sure: With current sources of revenue for the non-publicly traded companies in our sample we believe that there is good reason to be careful. History speaks against long-term domination of providers of free services and dot-com companies without a history of sufficient revenues should be investigated carefully before buying or investing in. Attracting capital has nevertheless gone smooth for these companies, having a lot of users seems to be enough to fill the various funding rounds.

6. Conclusion

On the question of how is it possible that all these things are available for free there is a simple answer. The dot-com companies that supply things for free employ "free" business models. They have found ways of making money without the need to charge the user directly for their services. Technological progress and the fact that digital free has a close to zero marginal cost, has led to this development. The companies that supply these services for free vary in profitability, it appears as if the search engines and the social networks in our sample have all been successful in finding revenues at least large enough to make some profit during the period we researched. The variability in profitability is large, as are the differences in profits and market cap of the companies in our sample. No strong tendencies for overvaluation were prevalent for companies in either of these two groups, with some exceptions among individual companies that had high P/E ratios. It appears as if they are more soundly valued than their predecessors during the dot-com bubble and have as opposed to them, profits. Neither of the content-based companies in the sample was according to estimations profitable. Their marginal costs are deemed as too high, this may change as technology improves further.

The regression model produced no significant results as to whether companies that employ Freemium or just advertising (Three Party Market) indicated to be more profitable than the other. When regression on the different groups was performed a significant result was found for content-based companies, they did as opposed to all other companies in the sample, lack profits. Comparison of companies within the sample groups gave mixed findings but network effects appear to create dominant players in the companies respective markets. Employing more than one source of revenue appears to be a good way to raise revenue per user for the companies in the social network group.

7. Future research

One of the things this study showed is that it is hard to come by information on providers of digital free services, especially for privately held companies. Not much to nothing is publicly known about the profitability of many of the companies. If we want to learn from history and avoid a new dot-com bubble on the Internet for "digital free" companies further research is needed. A suggestion for further research is to create a larger sample then conduct a similar study in order to generate more universal findings. The credibility of the results would gain from a larger sample and more coherent estimation techniques. A larger sample makes more advanced statistical methods available and the strength of their results increases. It also reduces the effect of outliers and reduces variance.

A historical approach taking into consideration former outrivaled IT companies like Friendster, Geocities, Alta Vista, Lycos etc. and what made them irrelevant would be interesting in order to study why some "free" companies fail to retain users. Such a study could be very useful in determining the factors that lead to long time success of "free" companies and provide valuable results, that could be useful for dot-com "free" companies today.

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Appendix 1. Definitions and abbreviations

£ = 1 GBP Great Britain Pound, currency of Great Britain.

€ = 1 Euro, currency of several countries of the European Union.

$ = 1 US $, currency of the United States of America.

Advertisement Banner/Ad Banner - Advertisement image or video on a website.

Content Provider/Content based company – Own definition of companies that primarily provide content that uses comparatively large amounts of bandwidth such as music or video. These sites are not "meeting places" like social communities.

Click-through rate – the percentage of people downloading a Web page who access a hypertext link to a particular advertisement. (The new Oxford American Dictionary).

dot-com – a company that relies largely or exclusively on Internet commerce (The new Oxford American Dictionary).

IPO - *Initial Public Offering.* An IPO occurs when a company's stock is made publicly traded on a stock market.

Market cap/Valuation - Market capitalization - is a measurement of the size of a company. It is equal to the share price times the number of shares outstanding of a publicly traded company. Market Cap is the same as a company's valuation.

Micropayments – A payment, typical via credit card, of a small amount of money (The new Oxford American Dictionary).

N/A - not applicable

Net income = Total Revenue – Total Cost. Net income is equal to the income that a firm has after subtracting costs and expenses from the total revenue. It is equal to *profit*.

Open source or Wiki projects – According to The New Oxford American Dictionary: "*denoting Software for which the original source code is made freely available and may be redistributed with or without modification.*"

P/E - The P/E ratio is calculated by available Market cap (or Valuation) divided by Net Income (in our calculations TTM Q4 2008 to Q3 2009 or estimates for 2009).

Peer-to-Peer technology – When people share data files or content among each other without the need for central coordination like to go through a website server.

Preferred Stock – Stocks that give the holder additional rights in case of a bankruptcy.

Profit – Defined by the Encyclopedia Britannica as: "*In business usage, the excess of total revenue over total cost during a specific period of time.*" (Encyclopedia Britannica, Profit)

Profitable – Is defined according to the The New Oxford American Dictionary as "(of a business or activity) yielding profit or financial gain." We use it in this manner and define a profitable company as one that shows a profit. The opposite being unprofitable that is to say shows a loss.

Profitability – Defined on BusinessDictionary.com as "*Ability of a firm to generate net income on a consistent basis. It is often measured by price to earnings ratio.*" (BusinessDictionary.com, Profitability*).* We use this definition with the exception of "on a consistent basis" since we only research one period.

Profit Margin - *Net income* as a percentage of revenue.

Revenue per User = total revenue/ total amount of users.

Revenue per 1000 page views = total annual revenue/((page views per month*12)/1000)

TTM -Trailing Twelve Months. Twelve consecutive months, often used with quarters as units for example 2nd quarter 2008 to 2nd quarter 2009.

Virtual goods - are non-physical objects an item or a picture that you can buy in social networking/communities like for example Facebook.

Appendix 2. Calculations

For formulas not included in the respective notes see Appendix 1.

Table 1. Baidu

	$ Million	*Notes*
Net income Q4 2008	42,3	*1*
Net income Q1 2009	26,5	*2*
Net income Q2 2009	56,1	*3*
Net income Q3 2009	72,2	*4*
Total net income Q4 2008 and Q1-Q3 2009	197,1	
Valuation	14730	*5*
P/E	74,73	

Notes:

1. Baidu 2009c

2. Baidu 2009d

3. Baidu 2009e

4. Baidu 2009f

5. Google 2009 Baidu

Table 2. Facebook

Revenues (M$)		*Notes*
Active users (millions)	350	*1*
Monthly page views (billion)	260	*2*
Brand ads	125	*3*
Ad deal with Microsoft	150	*3 and 4*
Virtual goods	75	*3*
Self Service Ads	200	*3*
Annual revenue	550	*3 and 5*
Operating margin	31,12%	*6*
Net income	171,16	
Valuation (M$)	6500	
P/E	37,98	
Revenue per 1000 page views ($)	0,176	*2*
Revenue per user ($)	1,57	*1*

Notes:

1. Facebook 2009b

2. Google 2009 Facebook

3. Carlson, N. 2009

4. Learmonth, M. 2009

5. Deagon, B. 2009

6. We retrieved the profit marginof 31,7% from Mixi , a japanese social networking site similar to Facebook, and assumed the same profit

margin for Facebook (Google 2009 Mixi)

List of Facebook valuations (McCarthy, C. 2009)

Date	Event
June 2004	• Friendster offer
April 2005	• Series A funding
March 2006	• Businessweek report
April 2006	• Series B funding
September 2006	• Yahoo offer
October 2007	• Microsoft Invests $240 million
June 2008	• Connect U court documents reveal valuation
August 2008	• Employees want to sell stock options
March 2009	• Sold stock is trading at a valuation of 3 billion
April 2009	• Techcrunch reports Facebook to get an offer valuing the company to 2 billion
April 2009	• Venture Beat reports new funding valuing Facebook to 4 billion
May 2009	• $200 million investment at an valuation of 8 billion
July 2009	• Digital Sky begins buyback of $100 million in stock from employees. Each share selling for 14,77 which assumes a valuation of 6,5 billion

Table 3. Google

	$ Million	Note
Net income Q4 2008	382,442	1
Net income Q1-Q3 2009	4546,348	2
Total net income Q4 2008 and Q1-Q3 2009	4928,79	
Valuation	188600	3
P/E	38,3	

Notes:

1. Google 2009a

2. Google 2009b

3. Yahoo 2009a

Table 4. LinkedIn

All data for Xing retrieved from the 2008 annual report
LinkedIn data about the relations between revenue sources from an Interview with founder Reid Hoffman in Business Week (Baker 2008)

Revenue			Note
Advertising (around 30% of revenue)			
Pageviews per year (millions)	22800		1
Revenue per 1000 page views (€)	0,44		2
Total Ad-revenue (million €)	10,07		3
Total Ad-revenue (million $)		**15,17**	4
Recruitment Services/Job Postings (30% of revenue)			
LinkedIn number of users (millions)	50		
Xing Revenue from this source (million €)	4,876		
Xing number of users (millions)	8,3		

Total Revenue From this Source (million €)	29,37	
Total Revenue From this Source (million $)	**44,25**	*4*
Premium Subscription (40% of revenue)		
Revenue from other sources	59,42	*6*
Total Premium Subscriptions revenue (million $)	**39,61**	*7*
Total Revenue (million $)	**99,03**	
Net Income (million $)	**11,69**	*8*
Valution (million $)	1015	
P/E	**86,86**	
Revenue per 1000 page views ($)	**4,85**	*1,4*
Revenue per user ($)	**1,98**	*4*

Notes:

1. Google 2009 LinkedIn, 1,7 billion per month

2. Number in Euro calculated from Xing, (Total ad-revenue/(total pageviews/1000))

3. (Pageviews per year/1000)*Ad revenue per 1000 views

4. Conversion rate 2009-12-04 from Yahoo Finance 1,5066

5. (Xing revenue from this source/Number of users)*Number of users LinkedIn)

6. Total ad-revenue+Total Revenue from RS and Job Postings=60%

7. Revenue from premium subscriptions = 40%

8. Calculated from Xing's PM of 11,8%

Table 5. Myspace

Revenues (M$)		*Note*
Google Ad deal	300	*1*
Advertisement by News Corp. Staff	195	*2*
Total annual revenue	495	*3*
Operating margin	31,12%	*4*
Net income	154,04	
Valuation relative to user from Facebook	2321,43	*5*
P/E	15,07	
active users (millions)	125	
page views (billions)	27	
Revenue per 1000 page views	1,53	*1*
Revenue per user ($)	3,96	

Notes

1. MacMillan, R. 2009

2. Advertisement by news Corp. Staff = total revenue - Google Ad deal

3. Emarketer estimates for 2009 revenues for MySpace (Chmielweski, D. & Sarno, D. 2009)

4. 4. We retrieved the profit marginof 31,7% from Mixi , a japanese social networking site similar to MySpace, and assumed the same profit margin for MySpace (Google 2009 Mixi)

5. Valuation MySpace = ((Facebook valuation/Facebook users)*MySpace users)/1 000 000 .

Table 6. Skype
All data is retrieved from eBay's annual report 2008 and Interim report Q3 2009. The costs associated with Skype is not presented separately, we have therefore estimated that it is attributable to the same percentage of cost as it contributes to revenues.

Revenue (M$)	Q4 2008	Q1 2009	Q2 2009	Q3 2009	*Notes*
Transaction revenue	138,66	143,238	155,661	172,957	
Marketing Services and other revenues	6,552	9,941	14,331	12,249	
Revenue Skype per Quarter	145,212	153,179	169,992	185,206	*1*
Total revenue Skype Q4 2008 and Q1-Q3 2009	**653,589**				
Total cost Skype Q4 2008	**119,02**				*1 and 2*
Total cost Skype Q1-Q3 2009	**425,66**				*1 and 3*
Total cost Skype Q4 2008 and Q1-Q3 2009	**544,69**				
Net Income Skype Q4 2008 and Q1-Q3 2009	**108,91**				
Valuation	**2750**				*4*
P/E	**25,25**				
Revenue per user ($)	**1,25**				*1*

Notes:

1. eBay 2009b and eBay 2009c

2. Total cost 2008 = (Revenue Ebay Q4 2008 - Net income Ebay Q4 2008)(Revenue Skype Q4 2008/Revenue Ebay Q4 2008) = (2035846-367192)*(145212/2035846)*

3. Total cost Q1-Q3 2009 = (Revenue Q1-Q3 Ebay 2009 - Net income Q1-Q3 Ebay 2009)(total revenue Skype Q1-Q3 2009/Revenue Ebay 2008) = (6356430-1034191)*(508377/6356430)*

4. eBay 2009a

Table 7. Spotify
All data retrieved from Arthur2009b "We7 chief helps calculate those elusive Spotify numbers", their numbers are based on competitor We7.
The Calculation assumes 2 million users in the UK, these calculations could possibly be extrapolated to Spotify as a whole by adding more users

Spotify			*Notes*
Revenue			
Revenue per 1000 views (£)	2,5		*1*
Ads played (thousands)	384000		*2*
Total revenue from ads (thousand £)		960	*3*
Revenue per Premium user (£)	10		
Number of Premium users 2% (thousands)	100		
Total revenue from subscribers		**1000**	
Total Revenue (Thousand £)		**1960**	
Cost			
Cost of streaming (tech)	0,0002		*4*
Songs streamed (thousands)	2000000		*5*
Total cost of streaming		**400**	
Licensing cost to record labels per song (£)	0,008		*6*
Publishing cost free song (PRS)	0,00085		*7*

Free songs streamed 96%	1920000	*8*
Total cost of streaming free songs	**16992**	*9*
PRS per month subscriber (£)	0,8	*10*
RL charge per month sub (£)	5	*10*
Premium users 2% (thousands)	100	*11*
Total licensing costs premiums users	**580**	
Total Cost	**17972**	
Net income (Thousand £)	**-16012**	

Notes:

1. £2,5 per 1000 ads played

2. Free Songs streamed/5=1920000/5=384000 an ad is played for every five songs (own assumption about the frequency of ads based on usage of Spotify)

3. Revenue per 1000 views(Ads played/1000)*

4. A low estimate based on that Spotify uses Peer-to-Peer technology

5. Based on that Spotify "Streams millions of songs each month" according to the company website

6. Licensing cost to record labels for each "free" song streamed

7. Publishing cost to the Performing Right Society for each free song streamed

8. Assuming that 96% of streamed songs are streamed by people using the free version

*9. Free Songs streamed*Licensing cost to record labels per song + Free Songs streamed*Publishing cost free song (PRS)*

10. Subscription offers charges higher rates from both Record Labels and PRS

*11. Premium users are estimated to be 2% of all users, (0,02*2 Million=100000)*

Table 8. Twitter

(million $)		Notes
Google	15	*1*
Microsoft	10	*1*
Japanese Ads	0,061	*2*
Total Revenue	25,061	
Total cost	22,5	*3*
Net Income	2,561	
Revenue per user ($)	0,46	1

Notes:

1. Ante, S.E. 2009

2. See Calculation below

3. Ante, S.E. 2009 gives estimates of 20 to 25, we used the average

Twitter Japanese Ads		**Notes**
Total Page views	348000	*1*
Revenue per 1000 page views ($)	0,176	*2*
Total Revenue (Thousand $)	61,248	*3*

Notes:

1. Twitter.jp for November 2009 multiplied by 12 (Google 2009 Twitter)

2. A revenue estimation of $0,176 per 1000 page views (same as for Facebook)

*3. Total revenue equals (pageviews/1000)*Revenue per 100 page views*

Table 9. Xing

The numbers for Q4 2008 to Q3 2009 is calculated using the anual numbers for 2008 minus the three first quarters and then adding the three first quarters of 2009.

Revenues (M€)	Q1-Q3 2008	2008	Q4 2008	Q1-Q3 2009	Q4 2008 - Q3 2009	Note
Subscriptions	20,059	28,108	8,049	27,817	35,866	
Advertising	1,732	2,429	0,697	1,105	1,802	
e-commerce	3,075		1,233		4,876	*1*
Jobs		3,964		3,271		
Best Offers		0,344		0,372		
Others	0,028	0,059	0,031	0,07	0,101	
Total	**24,894**	**34,904**	**10,01**	**32,635**	**42,645**	
Other operating income	0,196	0,37	0,174	0,572	0,746	
Total revenue	**25,09**	**35,274**	**10,184**	**33,207**	**43,391**	
Net Income (million €)	**4,72**	**7,318**	**2,598**	**2,52**	**5,118**	*2*
Net Income (million $)	**7,111**	**11,025**	**3,914**	**3,797**	**7,711**	5
Profit margin	**18,81%**	**20,75%**	**25,51%**	**7,59%**	**11,80%**	
Valuation (million)	**€159,61**	**$240,47**				*3,5*
P/E	**31,2**					
Revenue per 1000 page views	**13,39**					*4,5*
Revenue per user ($)	**7,87**					5

1. e-commerce consists of revenues from "Jobs" and "Best Offers"

2. Xing 2009b, Xing 2009c and Xing 2009d

3. Google 2009b Xing

4. Google 2009a Xing, 400 million page views per month

5. Conversion Rate 2009-12-04 from Yahoo Finance $1,5066/€

Table 10. Yahoo

	$ Million	Note
Net income Q4 2008	-303,428	*1*
Net income Q1-Q3 2009	445,038	*2*
Total net income Q4 2008 and Q1-Q3 2009	141,61	
Valuation	21910	*3*
P/E	154,72	

Notes:

1. Yahoo 2009b

2. Yahoo 2009c

3. Google 2009a Yahoo

Table 11. Youtube

Costs in M$	Credit Suisse	RampRate	Average	Own calculations high	low	Notes
Content & Overhead	331,8	331,8	331,8	331,8	331,8	1
Bandwidth	300	48,7	174,35	157,87	40,31	2
Peering	0	26,3	13,15	13,15	13,15	3
Hardware & Storage	12,7	3,3	8	8	8	1
Data Center & Software	6,4	4,9	5,65	5,65	5,65	1
Total Annual Cost ($M)	650,9	415	532,95	516,47	398,91	
Total revenue ($M) 2009	240	240	240	240	240	1
Net Loss ($M)	410,9	175	292,95	276,47	158,91	

1. Numbers Retrieved from RampRate and Credit Suisse report on Youtube profitability, average calculated and used in our calculations.
2. Number for Credit Suisse from a revised report lowering their cost estimate for Bandwidth, from 360 to 300 (Spangler, T. 2009). Own number calculated using equation below.
3. Not estimated in the first report by Credite Suisse but reported as reason for lowering bandwith cost in the second. (Spangler, T. 2009)

Bandwidth Cost Calculation		Notes
Pageviews (per month)	30 billion	1
Average length of clip in seconds	234	2
Average Bitrate	665600	3
Bandwidth used per month	559813,343	4
Annual Bandwidth cost (high)	157,9	5
Annual Bandwidth cost (low)	40,3	6

 Notes:

1. Helft, M. 2009

2. Lipsman, A. 2009b

3. Flash, the format used has two standard qualities, high and low. We used the tool ffmpeg on 20 randomly chosen clips on the site and measured the quality. The Youtube clips we viewed all used one of the two standard qualities, high quality (900 kbit/sec) or low quality (200 kbit/sec), we assumed equal proportions of the qualities on the site. To get the number in bits we multiplied it with 1024.
4. Formula: Bandwidth in terabytes = pageviews * ((Size of Html in Mb) + avg. Length of video in sec/((avg.Bandwidth*1024)/(1024^4))/1024^2)+ ε

when we estimate ε = 0, =>

Bandwitdh in terabytes = pageviews*(((1*8*1024^2)+234*665600)/(1024^4))/8

5. Lowest estimate of cost per terabyte by RampRate = $0,6 => 0,6*Bandwidth per month*12
6. Highest estimate of cost per terabyte by RampRate = $2,35 => 2,35*Bandwidth per month*12

Appendix 3. Cross references

Company	Baidu	Facebook
Net Income	Baidu 2009c-f	Carlson, N. 2009; Learmonth, M. 2009; Deagon, B. 2009; Deagon, B. 2009; McCarthy, C. 2009; Kim, R. 2009
Valuation	Google 2009 Baidu	
Active Users	N/A	Facebook 2009b
Pecentage of searches/ Page views	comScore 2009	Google 2009 Facebookg
Company	Google	LinkedIN
Net Income	Google 2009a-b	Ricadela, A. 2008; Lawsky, D. 2009b; Waters,R. 2008
Valuation	Yahoo 2009a	Waters, R. 2008;
Active Users	N/A	LinkedIn 2008a
Percentage of searches/Page views	comScore 2009	Google 2009 LinkedIn
Company	MySpace	Skype
Net Income	Chmielweski, D. & Sarno, D. 2009; Goldsmith, J. 2009	eBay 2009b-c
Valuation	N/A	eBay 2009a
Active Users	MacMillan, R. 2009	eBay 2009c
Page Views	Google 2009 MySpace	Google 2009 Skype
Company	Spotify	Twitter
Net Income	Arthur, C. 2009a-b	Lashinsky, A. 2009
Valuation	Menn, J. & Bradshaw, T. 2009	Stone, B 2009b; Corkery, M. 2009
Active Users	Arthur, C. 2009b	Lashinsky, A. 2009
Page Views	Goggle 2009 Spotify	Google 2009 Twitter
Company	Xing	Yahoo
Net Income	Xing 2009b-d	Yahoo 2009b-c
Valuation	Google 2009a Xing	Google 2009a Yahoo
Active Users	Xing 2009	N/A
Page Views/ Percentageof searches	Google 2009b Xing	comScore 2009
Company	Youtube	
Net Income	Fine, J. 2009; Spangler, T. 2009	
Valuation	Weinman, J. J. 2006; Olszewski, P. 2009; Helft, M. 2009; Waters, R. & Garrahan, M. 2009	
Active Users	Helft, M. 2009; Waters, R. & Garrahan, M. 2009	
Page Views	Helft, M. 2009; Waters, R. & Garrahan, M. 2009	