Week 3 Business metrics for the 'vertical' market of financial services

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Web marketing metrics

- Revenue metrics & dynamic metrics
- Marketing: the deliberate, measurable process of first creating and then continually increasing positive awareness and interest for a specific brand, product or service offering within a target demographic.
- define the demographic categories
- Adwords
    - purchasing adWords (google sponsored search result), priced by auction
    - How does it work
        - when a user enters search terms into Google, Google identifies ad words, terms that advertisers have placed bids on that match the searchers topic.
        - Advertisers bid on keywords by setting a maximum cost per click through(CPC) for each keywork they are interested in. bid price = actual CPC < maximum CPC
        - Google gets paid only when someone clicks through a sponsored link to the advertiser's landing page.
        - Google ranks pages by (CPC bid) * (quality score), where quality score = weighted combination of expected click-through rate, ad relevance and landing page experience
            - to prevent exploitative misdirection that would hurt the Google brand.
            - e.g. parses the text of the sponsored link and the landing page to calculate the relevant score
            - Google aims to offer sponsored links to landing pages that are as similar as possible in subject matter, quality, and click-through rates to the webpages that Google ranks highest in its unsponsored or organic search results.
    - Calculations
        - conversion rate = percentage of ppl click on our webpage that ultimately buy our product at least once
        - acquisition cost through sponsored channel = actual CPC/conversion rate
        - Lifetime value (LTV) of a customer = present value of all future revenues from the customer
        - profitable iff CPC/conversion rate < LTV
        - however, profitable does not mean positive cashflow:
            - CPC/conversion rate < first year's average revenue per customer?
- segmentation
    - want to identify common characteristics of ppl with high conversion to revenue rates, and even better with high recurring revenue and lifetime value.
        - but there are ppl who buy only once, but share with others?
    - Metrics for segmentation
        - where do visitors come from?
            - sponsored search, organic search, clicked link, 3rd party web site, direct
        - devices used
            - mobile, PC
        - geographic location
        - new/returning customer
        - bounce & leave immediately?
        - duration of visit
        - how many pages visited
        - click stream
    - e.g. of action taken - search engine optimisation (SEO): to improve organic search placement
        - make sure that our content is current, substantive and directly relevant, avoid

    diluting our landing page results with unrelated topics or unrelated vocabulary.
    - Try to get third-party web sites that have authoritative reputations for substantive opinion, like quality journalistic and product review sites and blogs, to mention us and provide a link to our web site.
    - Increase our social signal by increasing our Facebook page likes, retweets, and building a substantive Google Plus page and increasing likes for it as well; Having a large number of followers and even more important, retweets by influential people on Twitter

Financial services - money management

- Money managers: professional investors who are paid to generate a return on other people's money.
- asset returns
    - one-time investment:
        - absolute rate of return/annual rate of return calculated
        - either as a **continually compounded**, or as a **discrete rate of return** (be consistent)
            - continually compounded
              absolute return = ln(final price/first price)
              annual return = absolute / 2 year
            - discrete method
              absolute return = (final price/first price) -1
              annual return = (final price/first price)^1/2 -1 (geometric mean)
    - cash invested at different times
        - internal rate of return (IRR): identify a single fixed discrete, annual rate of return to apply to each of the payments that, if summed, would result in the final pay out.
    - A series of annual return
        - volatility of returns = standard deviation (if long-term returns are equal, the greater the volatility of returns, the riskier an investment is)
        - risk-free investment e.g. bond has volatility of return = 0
- The Equivalence of Different Returns –The Sharpe Ratio
    - excess return of asset investment by borrowing more, which in turn leads to higher volatility of returns
    - Sharpe ratio = excess return /volatility of returns = revenue per unit risk
    - Different returns are equivalent if they have the same Sharpe Ratio
- Four Types of Money Managers and Their Performance Metrics
    - index fund managers
        - Stock indexes: metrics used by investors to track the overall performance of an entire market rather than the performance of an individual stock.
            - e.g. S&P 500 index (^GSPC)- stock price performance of the 500 largest companies in the US ranked by their market capitalization.
                - market capitalisation = stock price per share * #shares tradeable
                - a market capitalisation weighted index
        - passive investing: buy and hold for the long term an investment attracts the performance of an index as closely as possible.
            - e.g. for S&P 500, by buying units in State Street's SPDR S&P 500 ETF investment trust (SPY) - a $135 billion exchange traded fund that holds shares in all 500 index stocks in exactly the proportions they have in the index. (competitors: IVV&VOO)
        - judged on 2 factors
            - How closely their fund performance matches that of their index. (typically very close)
            - how low their expense ratio (= $ spent on operating fund / total market value of fund assets) is
    - mutual fund managers
        - In so called efficient markets, such as US publicly traded securities, a strategy of

identifying a subset of stocks, then buying & holding those stocks as a whole, almost never works over the long term
            - over the past years, 80% of professional active money managers who selected their stocks from among the universe of S&P 500 stocks, performed worse than SPY - worse than random chance
        - specialise in a market sector/country etc - his universe
        - benchmark = mean return of all the stocks in his or her universe
        - judged on 3 measures
            - excess return = portfolio return - benchmark return
            - tracking error = standard dev of their excess returns over years (risk metric)
            - information ratio = excess return / tracking error
            - alternative: Sharpe ratio compared to the that of the bench mark
    - venture capital and private equity investors
        - do not collect all their cash from investors up front; Instead, investors make commitments to provide a certain amount of cash over the five to seven year life of a typical fund.
            - reasons:
                - VC/PE fund take a long time to source, develop, and structure.
                - often multiple investments will be made in the same company over a period of multiple years
                - the outside sources of capital don't want the money sitting around idle. They'd rather invest it elsewhere.
        - judged by the internal rate of return
    - hedge fund managers
        - fewer restrictions, permitted to "short"(structuring a deal so that they can make money when a stock price goes down), and to invest in many different types of assets, including options and derivatives; not tied to single sector universe
        - judged by
            - a strong annual rate of return over multiple years
            - the Sharpe ratio
            - the maximum drawdown from high water mark (risk metrics)
            - a strong linear trend in the log value of wealth in a fund