References for Keynesian Beauty Contest

"The Keynesian beauty contest is the view that much of investment is driven by expectations about what other investors think, rather than expectations about the fundamental profitability of a particular investment. John Maynard Keynes, the most influential economist of the 20th century, believed that investment is volatile because investment is determined by the herd-like "animal spirits" of investors. Keynes observed that investment strategies resembled a contest in a London newspaper of his day that featured pictures of a hundred or so young women. The winner of the contest was the newspaper reader who submitted a list of the top five women that most clearly matched the consensus of all other contest entries. A naïve strategy for an entrant would be to rely on his or her own concepts of beauty to establish rankings. Consequently, each contest entrant would try to second guess the other entrants' reactions, and then sophisticated entrants would attempt to second guess the other entrants' second guessing. And so on. Instead of judging the beauty of people, substitute alternative investments. Each potential entrant (investor) now ignores fundamental value (i.e., expected profitability based on expected revenues and costs), instead trying to predict "what the market will do." The results are (a) that investment is extremely volatile because fundamental value becomes irrelevant, and (b) that the most successful investors are either lucky or masters at understanding mob psychology – strategic game playing. "Animal spirits" are now known as "irrational exuberance," and this beauty contest model is an explanation for such phenomena as stock market *bubbles*. Contrast this model with *efficient markets* and *present value*."

Economicae: an illustrated encyclopaedia of economics

(see: http://www.unc.edu/depts/econ/byrns_web/Economicae/EconomicaeK.htm)

"A **Keynesian beauty contest** is a concept developed by John Maynard Keynes and introduced in Chapter 12 of his masterwork, *General Theory of Employment Interest and Money* (1936), to explain price fluctuations in equity markets. Keynes described the action of rational agents in a market using an analogy based on a contest that was run by a London newspaper where entrants were asked to choose a set of six faces from 100 photographs of women that were the "most beautiful". Everyone who picked the most popular face was entered into a raffle for a prize.

A naive strategy would be to choose the six faces that, in the opinion of the entrant, are the most beautiful. A more sophisticated contest entrant, wishing to maximize his chances of winning a prize, would think about what the majority perception of beauty is, and then make a selection based on some inference from his knowledge of public perceptions. This can be carried one step further to take into account the fact that other entrants would also be making their decision based on knowledge of public perceptions. Thus the strategy can be extended to the next order, and the next, and so on, at each level attempting to predict the eventual outcome of the process based on the reasoning of other rational agents.

'It is not a case of choosing those [faces] which, to the best of one's judgment, are really the prettiest, nor even those which average opinion genuinely thinks

the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be. And there are some, I believe, who practise the fourth, fifth and higher degrees.' (Keynes, General Theory of Employment Interest and Money, 1936).

Keynes believed that similar behavior was at work within the stock market. This would have people pricing shares not based on what they thought their fundamental value was, but rather based on what they think everyone else thinks their value was, or what everybody else would predict the average assessment of value was.

Other, more explicit scenarios help to convey the notion of the beauty contest as a convergence to Nash Equilibrium when the agents in the game behave perfectly rationally. The most famous such example is a contest where entrants are asked to pick a number between 0 and 100, with the winner of the contest being the person that is closest to 2/3 the average number picked for all contestants."

Wikipedia (http://en.wikipedia.org/wiki/Keynesian_beauty_contest)

Other references

http://www.psychol.ucl.ac.uk/ljdm/Studentconference/beauty.pdf

http://www.marietta.edu/~delemeeg/expernom/f99.html#nagel

http://www.hss.caltech.edu/~camerer/Camerer%20Feature.pdf