

## **Strategies for Customizing Financial Services Using Clients' Birth Order**

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*Birth order provides unique insight into individuals' personalities, risk tolerances, and investment needs. Use of this information will allow financial service firms to create a more customized experience for clients. This should increase customer satisfaction and retention, and with appropriate promotion, attract new investors. The practical implementation of birth order segmentation is discussed in a framework that includes the relationship with the financial advisor, investment advice, access to financial services, receptiveness to new products, packaging of services, and promotion of benefits from considering birth order.*

### **INTRODUCTION**

The order an individual is born within the family has a profound and long-lasting influence upon the formation of his/her personality and behavior.<sup>1</sup> In the words of one researcher, "birth order is the single most obvious factor that makes the shared family environment different for each sibling" (Sulloway, 1995, p.76). Birth order is a composite variable that incorporates siblings' differences in terms of age, power, and privilege (Sulloway, 1996). It is also antecedent to many bases for segmenting consumer markets (Rink, 1972; Claxton, 1995; Saad, et.al., 2005). Thus, birth order represents a comprehensive and realistic means to better understand individuals.

Use of birth order information has the potential to assist financial service firms in developing and offering more effective market segmentation schemes. This, in turn, will permit them to formulate financial services better attuned to the unique personalities, risk tolerances, and investment needs of their customers. According to one researcher, "neglect of birth order as a targetable demographic factor may be remiss at best, and unprofitable at worse" (Claxton, 1995, p.37).

Financial service companies traditionally use surveys to assess clients' investment needs and attitudes toward risk. However, these questionnaires usually fall short in revealing investors' personalities and financial goals. Several studies have found little or no relationship between individuals' risk preferences derived from surveys and their actual financial decision-making (Lopes, 1994; Warneryd, 1996; Zaleskiewicz, 2001). One weakness of traditional questionnaires is they use hypothetical gains and losses that are often confusing and result in an incomplete picture of customers' true attitudes about risk.

Numerous studies have investigated birth order and its effect upon the development of a person's personality and behavior patterns. Of particular interest are those findings that support a theoretical connection between birth order and consumer behavior (Kirchner, 1969; Rink, 1972; Claxton, 1995; Zemanek, et.al., 2000; Saad, et.al., 2005; Rink, 2010). However, very little exists in the literature conceptually linking birth order and the financial services industry. To help fill this gap, Rink, Roden, and Cox (2013) summarized research findings on birth order-related personality traits that have potential impact on the financial services industry. They discussed the relevant literature in a framework that considers birth order differences in terms of risk tolerance, patience, financial goals, and conformity.

The application of clients' birth order information provides financial service firms the opportunity to develop custom-designed services that will better appeal to customers' personalities, investment needs, and risk tolerances. This paper offers specific strategies for using birth order information to develop and provide a more customized experience for investors. This should increase their satisfaction and retention, which will maximize their lifetime value to the company, and with appropriate promotion, attract new clients. These practical suggestions are discussed in a framework that considers the relationship with the financial advisor, investment advice, access to financial services, receptiveness to new products, packaging of services, and promotion of benefits from using birth order as one of many dimensions in an investor's profile.

## **SPECIFIC STRATEGIES FOR CUSTOMIZING FINANCIAL SERVICES**

### **Relationship with Financial Advisor**

In general, first-born are more dependent, risk-averse, anxious, fearful, cautious, and worrisome than later-born.<sup>2</sup> Financial advisors should expect to spend significantly more time and effort with these customers in investment planning and decision-making as well as in the purchasing and post-purchasing processes. For example, first-born clients are likely to request advisors search a wide variety of different information sources for feasible low-risk investment alternatives and engage in an extensive evaluation of these (McClelland and Winter, 1969; Rink 2010).

After purchasing an investment, first-born clients are likely to experience dissonance or anxiety, because they have lower self-esteem than their younger siblings.<sup>3</sup> This will trigger their affiliation needs. It is crucial first-born find positive confirmation for their purchase. If a first-born client's investment struggles, this will produce stress and anxiety. Because first-born lack a reference point for evaluating their emotional state, they will want or need to affiliate with others, especially those who are, or appear to be, older than them (Schachter, 1959; Warren, 1966; Joubert, 1990; Sulloway, 1996; Salmon and Daly, 1998). Hence, financial advisors must be capable of handling the affiliation needs of first-born investors under such stress-producing situations. Financial advisors and customer service representatives should be trained in techniques for effectively handling assertive behavior that first-born investors are more likely to exhibit when they are anxious and they do not receive prompt and personal attention (Sulloway, 1996; Jefferson, et.al., 1998; Paulhus, et.al., 1999; Rohde, et.al., 2003; Beck, et.al., 2006; Rink, 2010).

First-born are susceptible to interpersonal influences because they are more dependent and possess lower self-esteem (Kirchner, 1969; Sulloway, 1995, 1996, and 2001; Saad, et.al., 2005). Understanding this susceptibility will allow financial advisors to satisfy these needs and maintain a successful relationship. Since first-born also tend to be serious, responsible, punctual, organized, structured, conservative, and traditional (Sulloway, 1996; Jefferson, et.al., 1998; Paulhus, et.al., 1999; Rohde, et.al., 2003; Healey and Ellis, 2007), advisors should mirror these characteristics in their clothing, appearance, mannerisms, speech, demeanor, and punctuality.

On the other hand, later-born possess higher self-esteem and are more independent. As a result, these clients will likely conduct their own evaluation of information regarding companies' financial products/services. They prefer a minimum of suggestion and assistance in decision-making. In addition to researching firms' websites, later-born investors might contact knowledgeable friends. Because later-born are more self-reliant and secure as well as less anxious, fearful, and worrisome than their oldest siblings, they are unlikely to experience post-purchase dissonance and will require little, if any, confirmation of

their purchase. If later-born ask for acceptance from others concerning a purchase, it will be from a few close peers. However, this affirmation will not be critical for dissonance reduction (Rink, 2010).

Financial advisors and investment companies, therefore, should not proactively contact later-born clients, especially to chat, provide general information, and solicit business. If these investors want something, they will contact their advisors.

### **Investment Advice**

First-born usually are patient (Chabris, et.al., 2008; Lampi and Nordblom, 2009; Morgan, 2009; Gilliam and Chatterjee, 2011), risk-averse, anxious, cautious, disciplined, and conservative. Morgan (2009) found first-born have personal discount rates lower than their youngest counterparts. They were willing to wait to receive a higher payout. First-born customers, therefore, are likely to prefer portfolios with conservative asset allocations, such as money market funds, bonds, and blue-chip stocks. They are also more likely to favor passive investment strategies that feature “buy-and-hold” philosophies with long-term perspectives. Such investments would minimize their anxiety, worry, fear, and post-purchase dissonance.

On the other hand, later-born are likely to prefer active investment strategies that include higher-risk securities, such as specific stocks and derivatives, in an attempt to earn abnormally high short-term returns. These riskier strategies are consistent with the inclinations of later-born investors with higher personal discount rates.

Gathering client’s demographic information, including birth order, should not change fundamental investment advice, such as diversification and appropriate asset allocation. However, birth order can be an additional tool to help financial advisors better understand a customer’s risk tolerance and find the combination of securities with the optimum balance of risk and return. The work for the financial advisor is finding the balance between the easier task of enabling portfolios that match investors’ inherent risk inclinations versus the more difficult task of advocating portfolios with appropriate levels of risk that will allow investors to reach their financial goals. In the case of first-born clients, the financial advisor may need to push these investors beyond their comfort level into more aggressive (but still prudent) investment mixes. In contrast, the advisor may need to caution later-born against taking too much risk while still being sensitive to their clients’ risk preferences.

The challenge is how to maintain satisfied customers when the investment advice is potentially contrary to the client’s instincts. The path of least resistance is to simply follow clients’ investment inclinations. However, the inherent conservative investment strategies of first-born may not allow them to reach their retirement goals. Using the insight from birth order, a financial advisor may be able to gently guide first-born customers to a more effective strategy. Similarly, by understanding the source of risk-taking behavior by later-born, financial advisors may be able to moderate the investment strategy by suggesting hedging strategies that work in combination with risky investments.

### **Assisted Versus Self-Directed Research**

In general, first-born are organized, responsible, serious, and prefer structured and controlled lives.<sup>4</sup> If a first-born customer has not used the company’s online investment research and analytical tools, they could be offered individual training on the software during a promotional trial period. The training could take place on an iPad or other tablet that the customer gets to keep if they elect to extend their service beyond the trial period. First-born customers who can conveniently track their investment activities on a professional and proprietary website will associate the financial services firm with the characteristics of being organized, responsible, and serious. This will strengthen the relationship between firms and their customers. In addition, this would make first-born investors feel they are in control of their financial future. The ability to check their portfolios and individual investments frequently and conveniently should decrease their anxiety and worry.

Later-born are typically independent, self-reliant, and heavy users of technology. They desire a minimum of suggestion and assistance in decision-making. Such customers, therefore, would prefer exposure to innovative products/services through social media or on the websites of financial services

firms, instead of sending out unsolicited postal mailings or e-mail blasts. In order to appeal to these individuals, the websites and social media should be creative, warm, friendly, fun, colorful, vivacious, and somewhat extravagant (Eisenman, 1987; Moore and Cox, 1990; Bohmer and Sitton, 1993; Sulloway, 1996).

### **Receptiveness to New Products**

First-born tend to be more cautious, insecure, anxious, fearful, worrisome, and dependent than later-born. They are also likely to be conservative, conforming, and traditional as well as prefer the status quo.<sup>5</sup> Thus, first-born are less willing to adopt innovations or try new things (Sulloway, 1995 and 1996; Jefferson, et.al., 1998; Healey and Ellis, 2007).

In a laboratory experiment, Morgan (2009) found first-born required more compensation if they were going to assume more risk. One way first-born customers could be motivated to try new investment services would be through sampling or trial usage. The service, such as online research and analytical tools, could be offered to investors free of charge on a trial basis. This would reduce first-borns' anxiety and perceived risk. Other possible incentives include free software upgrades and price discounts for bundling investment services.

In contrast to first-born, later-born had older siblings to compete with for parental attention (Sulloway, 1995 and 1996; Wang, et.al., 2009). As a result, later-born tend to be more risk-oriented, rebellious, and non-conservative. They are not motivated by tradition and status quo. Thus, later-born clients are more likely to be receptive to new investment products/services. As strong potential first-adopters, they should be the first clients who are offered new services (Rink, 2010).

### **Packaging of Services**

First-born generally are achievement- and success-oriented as well as status conscious.<sup>6</sup> Packaging of promotional materials and reports of investment performance to such customers should project these personality traits. For example, hard copy should look professional and be presented in elegant binders. Website reports should be similarly professional with attention paid to the layout, colors, and fonts. Later-born clients will be less impressed by elegant and expensive packaging than their older siblings. Instead, later-born clients will be attracted to more creative, lively, and colorful packaging.

### **Use of Technology and Social Media**

Later-born tend to be out-going, trusting, sociable, generous, cooperative, and peer-oriented.<sup>7</sup> In a laboratory experiment involving an anonymous investment game, Courtiol, et.al. (2009) found later-born participants displayed significantly more cooperation, trust, and generosity in exchanging monetary rewards than their first-born colleagues. As a result, firms' websites and social media should include chat rooms and forums for later-born customers to share information. Some companies have discovered word-of-mouth communications in online communities increased their sales (Chevalier and Mayzlin, 2006; Dwyer, 2010). Also, such communications could provide firms with "useful, hard-to-get customer information and insights." In order to be successful with later-born, online communities should "create individual and group activities that help form bonds among community members" (Kotler and Keller, 2012, p.547).

On the other hand, first-born typically are not as peer-oriented, sociable, trusting, generous, out-going, and cooperative as their later-born siblings. First-born investors will be more likely to use financial firms' online resources for fact-gathering and to privately track their investments. They will be less likely to utilize online communities.

## **PROMOTION OF BENEFITS FROM CONSIDERING BIRTH ORDER**

Birth order should not be used in isolation. It can, however, represent an additional variable that assists financial service companies to better understand customers' personalities, risk tolerances, and investment needs. When used in conjunction with other variables, consideration of birth order can provide

additional insight resulting in appropriately modified financial advice and customized service. In this section, we first examine how traditional advertising is perceived differently depending on an individual's birth order. Then, we suggest how financial service firms can attract new clients through promotion of customized services based on a better understanding of their customers.

### **Role of Traditional Advertising**

Advertisements should not directly target first-born or later-born investors, because a message that appeals to one group would likely alienate the other. In addition, the traits that are associated with birth order are generalizations, which may be altered by life experiences and other demographic characteristics. It is important, however, to consider how first-born and later-born customers respond to traditional advertising, because many advertisements effectively target one group or the other without mentioning birth order.

First-born are usually patient, responsible, conservative, and risk-averse. Advertisements promoting safe and steady investment returns will resonate with first-born clients, who value safety, patience, responsibility, and discipline.

Compared to later-born, first-born are more susceptible to personal (or normative) influences, which pertain to their need to meet others' expectations. Furthermore, they tend to be suggestible and prefer assistance in decision-making. Hence, potential first-born customers would be more receptive to advertisements featuring spokespersons, expert endorsements, or testimonials by satisfied clients.

First-born identify with parents and are more sensitive to their expectations than younger siblings. They are also likely to adopt parent's attitudes toward risk as well as the same-gender parent's personality traits and behavior patterns.<sup>8</sup> Advertisements showing clients discussing investment strategies with their parents would appeal to first-born customers.

Because first-born are achievement- and success-oriented as well as status-conscious, they would be attracted to communications indicating the company has won industry awards for excellence. These recognitions would further reduce some of the anxiety, worry, and fear of first-born investors. Similarly, individual financial advisors who have won firm or industry achievement awards, received advanced investment training, or earned MBA degrees would appeal to first-born, who are more likely to attain higher levels of social and intellectual success than their younger siblings.<sup>9</sup>

On the other hand, later-born are rebellious, independent, peer-oriented, and easy-going. They are self-confident, extravagant, fearless, energetic, and non-conforming. Relative to first-born, later-born are less status-conscious or achievement- and success-oriented. Later-born clients, however, might be receptive to advertisements featuring spokespersons, experts, or satisfied customers, who reflect the same personality traits as themselves.

Later-born also tend to be creative, fun, unconventional, vivacious, innovative in their thinking, and somewhat undisciplined (Eisenman, 1987; Moore and Cox, 1990; Bohmer and Sitton, 1993; Sulloway, 1996). Hence, they are apt to respond to humorous, lively, and non-traditional advertisements, which may be better suited to promoting innovative and aggressive investment strategies. Such advertisements are likely to appeal to the risk-taking nature of later-born, who are willing to gamble for higher payoffs.

### **Promotion of Better Understanding of Clients**

In advertising improved financial services, the use of birth order should not be directly promoted. It could easily be copied; and it does not stand well by itself. Instead, a differentiation strategy similar to the one employed by eHarmony should be adopted. eHarmony claims to truly understand customers by "identifying key dimensions of personality that make long-term relationships successful." Since eHarmony uses multiple dimensions to create a powerful portrait of who individuals are at the deepest level, they maintain they are unlike traditional online dating services. eHarmony is successful, in part, because they use an online personality profile tool to learn more about their clients, which allows them to better serve their customers.

The same can occur in the financial services industry. By using investors' birth order to customize financial services, an investment firm would be able to offer and promote exceptional levels of customer

service based on a more complete understanding of clients' personalities, risk tolerances, and financial needs. This, in turn, should increase the satisfaction of existing customers and improve investor retention, which will maximize their lifetime value to the company.<sup>10</sup> A highly satisfied customer typically stays loyal longer, purchases more as the company introduces new and upgraded products, talks favorably to others about the firm and its products, pays less attention to competitors, is less price sensitive, and costs less to serve than new customers (Homburg, et.al., 2005). In addition, opportunities would exist to attract new investors, who are lured to a financial service firm that better understands clients, because it uses multiple dimensions of personality to custom-design services.

## CONCLUSION

Birth order provides unique insight into an individual's personality, risk tolerance, and investment needs. Based upon the major distinguishing characteristics between first- and later-born that have potential impact upon the financial services industry, specific strategies to take advantage of birth-order information are suggested. Use of this information, in conjunction with demographic data, will allow financial service firms to create and offer a more customized experience for their clientele.

First-born tend to be cautious, anxious, insecure, and fearful. Further, they desire assistance in decision-making and are suggestible. When first-born become anxious, they want to affiliate with others. In every step of the investment planning and decision-making process, financial advisors should be personally involved with first-born customers. Advisors should expect to spend significantly more time with these individuals, especially in the post-purchase stage.

In addition, first-born clients are likely to favor conservative investments. The corresponding low expected returns are more acceptable to them, because they are patient and willing to wait for a future payout. The challenge comes when this conservative investment strategy will not allow them to reach their retirement goals. With an understanding of birth order, a financial advisor may be able to convince first-born customers to adopt a more effective investment strategy.

While typically cautious, slow to adopt new products, and less likely to use technology, first-born should be encouraged to utilize online services, which allows convenient tracking of their investment activities on a professional website. The ability of first-born clients to check their portfolios and individual investments frequently and conveniently should decrease their anxiety and worry.

Because first-born tend to be achievement- and success-oriented as well as status conscious, packaging of promotional materials and reports of investment performance should project these personality traits. For example, hard copy should look professional and be presented in elegant binders. Website reports should be similarly professional with attention paid to the layout, colors, and fonts.

On the other hand, later-born are generally more risk-oriented, independent, unconventional, creative, peer-oriented, self-reliant, out-going, and cooperative. They are likely to conduct their own evaluation of information regarding companies' financial products/services. Later-born prefer a minimum of suggestion and assistance in decision-making. Also, they are unlikely to experience post-purchase dissonance and will require little, if any, confirmation of their purchase. Financial advisors and investment companies, therefore, should not proactively contact later-born clients, especially to chat, provide general information, and solicit business.

Later-born are likely to be attracted to riskier investment strategies that might include active investing with short-term time horizons. By better understanding the source of this risk-taking behavior, financial advisors may be able to moderate the investment strategy of later-born. For instance, advisors can suggest hedging strategies that work in combination with risky investments.

Typically, later-born are independent, self-reliant, and heavy users of technology. They desire a minimum of suggestion and assistance in decision-making. Because later-born tend to be out-going, trusting, sociable, generous, cooperative, and peer-oriented, firms' websites and social media should include chat rooms and forums for investors to share information. It is less effective to try to impress later-born with elegant and expensive packaging.

When used in conjunction with other variables, clients' birth order can provide additional insight into their personalities, risk tolerances, and investment needs. This will result in appropriately modified financial advice and customized service. Offering improved financial services to investors through consideration of birth order should increase their level of satisfaction and improve customer retention, thereby maximizing their lifetime value to the company. In addition, opportunities exist to attract new clients, who are lured to a financial services firm that better understands customers as a result of using multiple dimensions of personality to customize service.

## ENDNOTES

1. For example, see Sampson, 1965; Ernst and Angst, 1983; Daniels and Plomin, 1985; Eisenman and Sirgo, 1991; Eisenman, 1992; Lester, et.al., 1992; Sulloway, 1995 and 1996; Steelman, et.al., 2002; Courtiol, et.al., 2009; and Sulloway and Zweigenhaft, 2010.
2. For example, see Schachter, 1959; Sampson, 1965; Warren, 1966; Ernst and Angst, 1983; Burden and Perkins, 1987; Eisenman, 1987; Moore and Cox, 1990; Phillips, et.al., 1990; Bromiley and Curley, 1992; Rowe, et. al., 1992; Sulloway, 1995 and 1996; Davis, 1997; Zajonc and Mullally, 1997; Jefferson, et.al., 1998; Mock and Parker, 1997; Paulhus, et.al., 1999; Eckstein, 2000; Zweigenhaft and Von Ammon, 2000; Sulloway, 2001; Steelman, et.al., 2002; Rohde, et.al., 2003; Stewart, 2004; Saad, et.al., 2005; Healey and Ellis, 2007; Hertwig, et.al., 2007; Dixon, et.al., 2008; Simonton, 2008; Courtiol, et.al., 2009; Wang, et.al., 2009; Sulloway and Zweigenhaft, 2010; and Gilliam and Chatterjee, 2011.
3. For example, see Ernst and Angst, 1983; Burden and Perkins, 1987; Rowe, et.al., 1992; Sulloway, 1996; Mock and Parker, 1998; Paulhus, et.al., 1999; Rohde, et.al., 2003; Courtiol, et.al., 2009; and Sulloway and Zweigenhaft, 2010.
4. For example, see Sampson, 1965; Moore and Cox, 1990; Harris and Morrow, 1992; Sulloway, 1995 and 1996; Jefferson, et.al., 1998; Salmon and Daly, 1998; Paulhus, et.al., 1999; Hertwig, et.al., 2002; Rohde, et.al., 2003; Stewart, 2004; and Healey and Ellis, 2007.
5. For example, see Sampson, 1965; Eckstein, 1983; Ernst and Angst, 1983; Burden and Perkins, 1987; Stewart and Stewart, 1995; Sulloway, 1996; and Zajonc and Mullally, 1997.
6. For example, see Sampson, 1965; Marjoribanks, 1989; Terry, 1989; Cherian, 1990; Wilson, et.al., 1990; Retherford and Sewell, 1991; Sulloway, 1995 and 1996; Davis, 1997; Paulhus, et.al., 1999; Rohde, et.al., 2003; Hertwig, et.al., 2007; and Simonton, 2008.
7. For example, see Schachter, 1959; Sampson, 1965; Warren, 1966; Eckstein and Driscoll, 1983; Steelman and Powell, 1985; Fullerton, et.al., 1989; Moore and Cox, 1990; Sulloway, 1995 and 1996; Salmon and Daly, 1998; Paulhus, et.al., 1999; Steelman, et.al., 2002; Rohde, et.al., 2003; Healey and Ellis, 2007; and Courtiol, et.al., 2009.
8. For example, see Sampson, 1965; Toman, 1976; Harris and Morrow, 1992; Sulloway, 1996; Salmon and Daly, 1998; Paulhus, et.al., 1999; Rohde, et.al., 2003; Dohmen, et.al., 2006; Healey and Ellis, 2007; and Hertwig, et.al., 2007.
9. For example, see Marjoribanks, 1989; Terry, 1989; Cherian, 1990; Wilson, et.al., 1990; Retherford and Sewell, 1991; Sulloway, 1995; Davis, 1997; Paulhus, et.al., 1999; and Simonton, 2008.
10. Customer lifetime value (CLV) describes the net present value of the stream of future profits expected over the customer's lifetime purchases (Kotler and Keller, 2012). For more information, refer to Gupta, et.al., 2004; Ho, et.al., 2006; Kumar, 2006; and Kumar, et.al., 2008.

## REFERENCES

- Beck, E., Burnett, K. & Vosper, J. (2006). Birth-order effects on facets of extraversion. *Personality and Individual Differences*, 40, 953-959.
- Bohmer, P. & Sitton, S. (1993). The influence of birth order and family size on notable American women's selection of careers. *Psychological Record*, 43, 375-380.
- Bromiley, P. & Curley, S. (1992). Individual differences in risk taking. In J. Yates (Ed.), *Risk-taking behavior*, New York: John Wiley.
- Burden, R. & Perkins, R. (1987). Birth order: Some possible effects on children's perceptions of themselves and their siblings. *Educational Child Psychologist*, 4, 35-45.
- Chabris, C., Laibson, D., Morris, C., Schuldt, J. & Taubinsky, D. (2008). Individual laboratory-measured discount rates predict field behavior. *Journal of Risk and Uncertainty*, 37, 237-269.
- Cherian, V. (1990). Birth order and academic achievement. *Psychological Reports*, 66, 19-24.
- Chevalier, J. & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. *Journal of Marketing Research*, 43, 345-354.
- Claxton, R. (1995). Birth order as a market segmentation variable. *Journal of Consumer Marketing*, 12, 22-39.
- Courtiol, A., Raymond, M. & Faurie, C. (2009). Birth order affects behaviour in the investment game: Firstborns are less trustful and reciprocate less. *Animal Behavior*, 78, 1405-1411.
- Daniels, D. & Plomin, R. (1985). Differential experience of siblings in the same family. *Developmental Psychology*, 21, 747-760.
- Davis, J. (1997). Birth order, sibship size, and status in modern Canada. *Human Nature*, 8, 205-230.
- Dixon, M., Reyes, C., Leppert, M. & Pappas, L. (2008). Personality and birth order in large families. *Personality and Individual Differences*, 44, 119-128.
- Dohmen, T., Falk, A., Huffman, D. & Sunde, U. (2006). The intergenerational transmission of risk and trust attitudes. *IZA Discussion Paper* (No. 2380).
- Dwyer, P. (2010). *Measuring the value of word of mouth and its impact in consumer communities* (Report No. 06-118). Cambridge, MA: Marketing Science Institute.
- Eckstein, D. (2000). Empirical studies indicating significant birth order related personality differences. *Journal of Individual Psychology*, 56, 481-494.
- Eckstein, D. & Driscoll, R. (1983). Leadership, popularity, and birth order in women. *Journal of Individual Psychology*, 34, 70-77.
- Eisenman, R. (1987). Creativity, birth order, and risk taking. *Bulletin of the Psychonomic Society*, 25, 87-88.
- Eisenman, R. (1992). Birth order, development and personality. *International Journal of Child and Adolescent Psychiatry*, 55, 25-27.
- Eisenman, R. & Sirgo, H. (1991). Liberals versus conservatives: Personality, child-rearing attitudes, and birth order/sex differences. *Bulletin of the Psychonomic Society*, 29, 240-242.
- Ernst, C. & Angst, J. (1983). *Birth order: Its influence on personality*, Berlin, Germany: Springer-Verlag.
- Fullerton, C., Ursano, R., Wetzler, H. & Slusavcick, H. (1989). Birth order, psychological well-being, and social supports in young adults. *Journal of Nervous and Mental Disease*, 177, 556-559.
- Gilliam, J. & Chatterjee, S. (2011). The influence of birth order on financial risk tolerance. *Journal of Business and Economics Research*, 9, 43-50.
- Gupta, S., Lehmann, D. & Stuart, J. (2004). Valuating customers. *Journal of Marketing Research*, 61, 7-18.
- Harris, K. & Morrow, K. (1992). Differential effects of birth order and gender on perceptions of responsibility and dominance. *Journal of Individual Psychology: Adlerian Theory, Research, and Practice*, 48, 109-118.
- Healey, M. & Ellis, B. (2007). Birth order, conscientiousness, and openness to experience. *Evolution and Human Behavior*, 28, 55-59.

- Hertwig, R., Davis, J. & Sulloway, F. (2002). Parental investment: How an equity motive can produce inequality. *Psychological Bulletin*, 128, 728-745.
- Ho, T., Park, Y. & Zhou, Y. (2006). Incorporating satisfaction into customer value analysis: Optimal investment in lifetime value. *Marketing Science*, 25, 260-277.
- Homburg, C., Koschate, N. & Hoyer, W. (2005). Do satisfied customers really pay more? A study of the relationship between customer satisfaction and willingness to pay. *Journal of Marketing*, 69, 84-96.
- Jefferson, T., Jr., Herbst, J. & McCrae, R. (1998). Associations between birth order and personality traits: Evidence from self-reports and observer ratings. *Journal of Research in Personality*, 32, 498-509.
- Joubert, C. (1990). Relationship of liking of first names to birth order and loneliness. *Psychological Reports*, 66, 1177-1178.
- Kirchner, D. (1969). *Personal influence, purchasing behavior, and ordinal position*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Kotler, P. & Keller, K. (2012). *Marketing management* (14<sup>th</sup> ed.), Upper Saddle River, NJ: Prentice-Hall.
- Kumar, V. (2006). Customer lifetime value. In R. Grover and M. Vriens (Eds.), *Handbook of marketing research*, Thousand Oaks, CA: Sage Publications.
- Kumar, V., Bohling, T. & Beckmann, D. (2008). The power of CLV: Managing customer lifetime value at IBM. *Marketing Science*, 27, 585-599.
- Lampi, E. & Nordblom, K. (2009). Sibling and birth-order effects on time preferences and real-life decisions, *Working Paper* (No. 388), Goteborg, Sweden: University of Gothenburg.
- Lester, D., Eleftheriou, L. & Peterson, C. (1992). Birth order and psychological health. *Personality and Individual Differences*, 17, 379-380.
- Lopes, L. (1994). Psychology and economics: Perspectives on risk, cooperation, and the marketplace. *Annual Review of Psychology*, 45, 197-227.
- McClelland, D. & Winter, D. (1969). *Motivating economic achievement*, New York: Free Press.
- Marjoribanks, K. (1989). Sibling correlates of young adults' status attainment. *Journal of Psychology*, 123, 507-516.
- Mock, D. & Parker, G. (1997). *The evolution of sibling rivalry*, Oxford, UK: Oxford University Press.
- Moore, K. & Cox, J. (1990). Doctor, lawyer ... or Indian chief? The effects of birth order. *Baylor Business Review*, 8, 18-21.
- Morgan, E. (2009). *The heir and the spare: Impact of birth order on risk attitudes, discount rates, and behaviors*. Unpublished doctoral dissertation, University of South Carolina, Columbia.
- Paulhus, D., Trapnell, P. & Chen, D. (1999). Birth order effects on personality and achievement within families. *Psychological Science*, 10, 482-488.
- Phillips, A., Long, R. & Bedeian, A. (1990). Type A status: Birth order and gender effects. *Journal of Individual Psychology: Adlerian Theory, Research, and Practice*, 46, 365-373.
- Retherford, R. & Sewell, W. (1991). Birth order and intelligence. *American Sociological Review*, 56, 141-158.
- Rink, D. (1972). Ordinal position: The next market segmentation variable, *Working Paper*, Muncie, IN: Ball State University, College of Business.
- Rink, D. (2010). The impact of birth order upon consumers' decision-making, buying, and post-purchase processes: A conceptualization. *Innovative Marketing*, 6, 71-79.
- Rink, D., Roden, D. & Cox, S. (2013). Risk preferences and the marketing of financial services: An argument for segmentation by birth order. *Journal of Financial Services Marketing*, 18, 17-26.
- Rohde, P., Atzwanger, K., Butovskaya, M., Lampert, A., Mysterud, I., Sanchez-Andres, A. & Sulloway, F. (2003). Perceived parental favoritism, closeness to kin, and the rebel of the family. *Evolution and Human Behavior*, 24, 261-276.
- Rowe, D., Rodgers, J. & Meseck-Bushey, S. (1992). Sibling delinquency and the family environment: Shared and unshared influences. *Child Development*, 63, 59-67.
- Saad, G., Gill, T. & Natarajan, R. (2005). Are laterborns more innovative and nonconforming consumers than firstborns? *Journal of Business Research*, 58, 902-909.

- Salmon, C. & Daly, M. (1998). Birth order and familial sentiment: Middleborns are different. *Evolution and Human Behavior*, 19, 299-312.
- Sampson, E. (1965). The study of ordinal position: Antecedents and outcomes. In V. Maher (Ed.), *Progress in experimental personality research*, New York: Academic Press.
- Schachter, S. (1959). *The psychology of affiliation*, Stanford, CA: Stanford University Press.
- Simonton, D. (2008). Gender differences in birth order and family size among 186 eminent psychologists. *Journal of Psychology of Science and Technology*, 1, 15-22.
- Steelman, L. & Powell, B. (1985). The social and academic consequences of birth order: Real, artifactual, or both? *Journal of Marriage and the Family*, 8, 117-124.
- Steelman, L., Powell, B., Werum, R. & Carter, S. (2002). Reconsidering the effects of sibling configuration: Recent advances and challenges. *Annual Review of Sociology*, 28, 243-269.
- Stewart, A. (2004). Can knowledge of client birth order bias clinical judgment? *Journal of Counseling and Development*, 82, 167.
- Sulloway, F. (1995). Birth order and evolutionary psychology: A meta-analytic overview. *Psychological Inquiry*, 6, 75-80.
- Sulloway, F. (1996). *Born to rebel: Birth order, family dynamics, and creative lives*, New York: Pantheon.
- Sulloway, F. (2001). Birth order, sibling competition, and human behavior. In H. Holcomb (Ed.), *Conceptual challenges in evolutionary psychology: Innovative research strategies*, Dordrecht, Netherlands: Kluwer Academic.
- Sulloway, F. & Zweigenhaft, R., Jr. (2010). Birth order and risk taking in athletics: A meta-analysis and study of major league baseball. *Personality and Social Psychology Review*, 14, 402-416.
- Terry, W. (1989). Birth order and prominence in the history of psychology. *Psychological Record*, 39, 333-337.
- Toman, W. (1976). *Family constellation* (3<sup>rd</sup> ed.), New York: Springer Publishing Company.
- Wang, X., Kruger, D. & Wilke, A. (2009). Life history variables and risk-taking propensity. *Evolution and Human Behavior*, 30, 77-84.
- Warneryd, K. (1996). Risk attitudes and risky behavior. *Journal of Economic Psychology*, 17, 749-770.
- Warren, J. (1966). Birth order and social behavior. *Psychological Bulletin*, 65, 38-43.
- Wilson, D., Mundy-Castle, A. & Panditji, L. (1990). Birth order and intellectual development. *Journal of Social Psychology*, 130, 409-411.
- Zajonc, R. & Mullally, P. (1997). Birth order: Reconciling conflicting effects. *American Psychologist*, 52, 685-699.
- Zaleskiewicz, T. (2001). Beyond risk seeking and risk aversion: Personality and the dual nature of economic risk taking. *European Journal of Psychology*, 15, 105-122.
- Zemanek, J., Claxton, R. & Zemanek, W. (2000). Relationship of birth order and the marketing-related variable of materialism. *Psychological Reports*, 86, 429-434.
- Zweigenhaft, R., Jr. & Von Ammon, J. (2000). Birth order and civil disobedience: A test of Sulloway's born to rebel hypothesis. *Journal of Social Psychology*, 140, 624-627.