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The effects of mailing design characteristics on direct mail campaign performance

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ABSTRACT

Designing effective direct mail pieces is considered a key success factor in direct marketing. However, related published empirical research is scarce while design recommendations are manifold and often conflicting. Compared with prior work, our study aims to provide more elaborate and empirically validated findings for the effects of direct mail design characteristics by analyzing 677 direct mail campaigns from non-profit organizations and financial service providers. We investigate the effects of (1) various envelope characteristics and observable cues on opening rates, and (2) characteristics of the envelope content on the keeping rates of direct mail campaigns. We show that visual design elements on the outer envelope – rather than sender-related details – are the predominant drivers of opening rates. Factors such as letter length, provision of sender information in the letter, and personalization positively influence the keeping rate. We also observe that opening and keeping rates are uncorrelated at the campaign level, implying that opening direct mail pieces is only a necessary condition for responding to offers, but not per se a driver of direct mail response.

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1. Introduction

Direct marketing is a key component of the advertising media mix for many firms (DMA, 2011). Direct marketing serves a range of firm communication goals from creating brand awareness to generating response along with TV, print or online advertising (e.g., Briggs, Krishnan, & Borin, 2005; Naik & Peters, 2009). Among all direct marketing media, direct mail is clearly the predominant element, accounting for over one-third of direct marketing expenditures in most countries (DMA, 2011). Hence, consumers are confronted with a continuously growing direct mail volume in the mailbox that brings increased competition for their limited attention (Van Diepen, Donkers, & Franses, 2009a). In responding to this competition, firms follow two primary routes. First, they improve the targeting, timing, and sequencing of their direct mail campaigns. This development is well reflected in the academic literature, which explores how the response to direct mail has been optimized by better segmentation and targeting (e.g., Bult & Wansbeek, 1995; Donkers, Paap, Jonker, & Franses, 2006) as well as better timing and sequencing, and by identifying the appropriate number of mailings per customer (e.g., Elsner, Krafft, & Huchzermeier, 2004; Gönül

& Ter Hofstede, 2006; Jen, Chou, & Allenby, 2009; Rust & Verhoef, 2005; Van Diepen et al., 2009a).

Second, to catch attention in the mailbox, firms strive to improve the design of their direct mail. These efforts are reflected in the increased focus that design characteristics are given in practice and in the textbooks on direct marketing (e.g., Nash, 2000; Stone & Jacobs, 2008). The textbooks claim that the creative elements and design characteristics of direct mail account for up to a quarter of its overall success (e.g., Roberts & Berger, 1999, p. 7; Stone & Jacobs, 2008, p. 6): the favorable presentation of the solicitation facilitates the consumer's response process by attracting attention and then generating interest in the offer. Accordingly, design primarily acts as a critical response enabler in the early and intermediate stages of the direct mail funnel. Hence, design drives the intermediate stages, such as the opening and reading of a direct mail piece, rather than ultimate response (De Wulf, Hoekstra, & Commandeur, 2000). Unfortunately, these pre-response stages are currently a "black box" for marketing managers: they only observe the number of final responses resulting from a particular campaign. This limitation could, to some extent, explain why design optimization has received less attention compared to selection and targeting, both of which are easily measured and can be linked directly to response. If systematic marketing research data on the intermediate funnel stages were available, however, such information could provide diagnostic value to managers. Given the low response rates of approximately 1–2% on average (DMA, 2006), it would help to infer where and why the majority of direct mail becomes stuck in the direct mail funnel and how to overcome it. This study analyzes a unique

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Table 1
Selected studies on direct mailing characteristics.

Study	Research design	Survey (S)/ observation (O)	Panel (P)	Field (F)/ laboratory (L) experiment
Author(s)	Main issue			
Capon and Farley (1976)	Impact of message on response	O/S		F
Hozier and Robles (1985)	Effects of prenotification, letter structure, ethnicity of signatory, and personalization on direct mail response	O		F
Beard et al. (1990)	Impact of letter length on response	O		F
Gordon and Kellerman (1990)	Impact on prompt-response and quality premiums on response	O		F
Sherman, Greene, and Plank (1991)	Effects of one-sided, two-sided, and comparative message structure on response	O		F
Williams, Beard, and Kelly (1991)	Effect of readability of direct-mail sales letters on response	O		F
James and Li (1993)	Effects of envelope characteristics on opening behavior (from consumers' and practitioners' point of view)	S		
McMellon and Ducoffe (1995)	Impact of envelope appearance on consumers' mail-sorting behavior	S		L
Seaver and Simpson (1995)	Effects of mail order catalog design on consumer response behavior	O		F
Smith and Berger (1996)	Impact of charitable direct mail appeals (suggested anchors, message framing, and reference information) on donor decisions	O		F
Van der Scheer et al. (1996)	Impact of reply card design on response rate and amount of donation	O		F
Bult et al. (1997)	Direct and interactive effects of target and mailing characteristics on response to charitable mails solicitations	O		F
Vriens et al. (1998)	Study 1: identification of most "attractive" envelope design for different consumer segments	S		L
	Study 2: effects of mailing characteristics on response and amount of donation	O		F
De Wulf et al. (2000)	Effect of direct mail design characteristics on the opening and reading behavior of business-to-business direct mail	S		F
Bell et al. (2006)	Experimental testing of response effects of direct mail design and offer characteristics	O		F
Ledolter and Sweesey (2006)	Impact of direct mail design and offer features on magazine subscription response rates	O		F
Bekkers and Crutzen (2007)	Effect of color picture on envelope response and amount of donation	O		F
Diamond and Iyer (2007)	Effects of audience involvement, enclosures and different appeals on the effectiveness of charitable solicitations	S		F
Current study (2013)	Impact of various mailing characteristics on opening rate and keeping rate of direct mailing campaigns	O	P	

commercial direct mail panel that explicitly covers these intermediate direct mail funnel stages by measuring the opening and keeping rate.

In general, there are numerous specific mailing design guidelines in the practitioner literature without an emerging consensus (e.g., about whether cover letters should be short or long) and mostly without reference to any empirical study. Only a few scientific empirical studies have been published on related issues. These studies focus mostly on the advertising context of direct marketing and on a particular industry or firm, and they typically employ firm-specific experimental designs leading to non-generalizable results (e.g., Bell, Ledolter, & Swersey, 2006; De Wulf et al., 2000; Diamond & Iyer, 2007; Gordon & Kellerman, 1990; Van der Scheer, Hoekstra, & Vriens, 1996). Given the variety of industries and their peculiarities (e.g., Stone & Jacobs, 2008), it would not be surprising if only a few design characteristics actually achieve cross-industry importance, while the majority of effects might be industry-specific.

Accordingly, our primary research objective is to investigate the effect of direct mail design on the intermediate stages of the direct mail response funnel, namely the opening and keeping rates of direct mailing campaigns instead of the ultimate response rates. As a second research objective, we intend to compare the effect of specific design characteristics across industries, investigating the extent to which findings in one industry can be valid for another. Accordingly, we use a database of 677 direct mail campaigns in 2 industries: the financial services and the non-profit industry. For the intermediate stages, we define the opening rate (OR) of a campaign as the percentage of recipients that open the direct mail envelope, while the keeping rate (KR) is defined as the percentage of recipients that keep the mailing after opening the envelope. Using these intermediate communication metrics at the campaign level will enable us to shed unprecedented light into the "black box" of the direct mail funnel.

Our empirical results show that the design elements substantially impact the OR and the KR. Surprisingly, we observe no relationship between the OR and the KR, implying that opening is a necessary but not sufficient condition for generating a campaign response. Our results also show that some design characteristics are of varying importance at different stages of the direct mail funnel. For instance,

presenting the sender's logo on the envelope decreases the OR for financial service providers. Providing this information in the letter, however, increases the KR in both industries.

The remainder of the paper is organized as follows. We review the literature on direct mail design. Next, we present our research framework and its theoretical underpinnings. After this, the data collection, sample properties, and model estimation will be described, followed by a presentation of our empirical results. From these results, we will derive conclusions as well as implications for research and management. We conclude with directions for further research.

2. Prior research on direct mail design

We define the scope of our literature review based on 2 selection criteria. First, the studies should focus on the effects of the design characteristics rather than on the other success factors of the direct mail solicitations (such as timing, targeting, offer design, or message appeals). Second, we exclude studies on the design of mail surveys (e.g., Gendall, 2005; Helgeson, Voss, & Terpening, 2002; Yu & Cooper, 1983). Hence, we select only studies that involve design features in commercial direct mail solicitations. Table 1 provides an overview of the studies published in reviewed journals that fit these criteria. Across the studies, we compare (1) the research design and sample description, (2) the dependent variables, and (3) the category of independent variables, namely design characteristics and covariates. At this point, we intentionally refrain from describing the empirical results of these studies. Instead, we will draw on their findings later in Section 4.2 when discussing the effects of different types of design characteristics. Here, we focus on the methodological aspects to highlight the gaps in the previous research that our study aims to address.

2.1. Research design and sample description

The reported studies have typically adopted field experiments with a single firm in a single industry. In particular, non-profit organizations have been frequently studied; the other industries studied are primarily financial or B2B services. The number of investigated campaigns or

Sample description					
Country	Industry	No. of firms/ organizations	No. of recipients/ respondents	Volume of campaign(s)	No. of stimuli (campaigns)
USA	Magazine subscription	1	1,624	1,624	4
USA	B2B service	1	1,068	1,068	8
USA	Consumer durables	1	1,152 k	1,152 k	2
USA	Medical supply	1	20 k	20 k	2
USA	B2B service	1	2,333	2,333	3
USA	Newsletter subscription	1	158 k	158 k	2
USA	n.a.	n.a.	692	n.a.	n.a.
USA	n.a.	n.a.	106	n.a.	2
USA	Mail order (soft goods)	1	>250 k	>250 k	16
USA	Charity (university)	1	18,144	18,144	8
NL	Charity	1	14,851	14,851	8
NL	Charity (healthcare)	1	48 k	48 k	16
NL	Charity (healthcare)	1	170	170	16
NL	Charity (healthcare)	1	48 k	48 k	16
BEL	B2B	n.a.	60	2,005	n.a.
USA	Banking (credit card)	1	100 k	100 k	20
USA	Publishing	1	40 k	40 k	16
NL	Charity	1	89,937	89,937	2
USA	Charity	1	1,440	1,440	4
GER	Banking and charity	146	3,000 (84 m)	25,946 (307.2 m)	677

(continued on next page)

different stimuli employed varies between 2 and 20. Given the limited number of campaigns and stimuli investigated in the previous studies, inferring general insights is hardly feasible. Hence, there is a need for a study that considers a large number of campaigns to develop generalizable findings.

2.2. Dependent variables

The direct mail response rate is the most frequently studied behavioral variable (in 14 out of 18 cases). However, the studies investigating envelope design characteristics usually investigate their impact on the OR (e.g., James & Li, 1993; Vriens, van der Scheer, Hoekstra, & Bult, 1998). When the additional design characteristics from the other direct mail elements are included, they are related to reading behavior as an intermediate measure that reflects elevated interest (De Wulf et al., 2000). In sum, what emerges from the literature is a direct mail response funnel from (a) opening behavior to a stage of (b) interest to (c) ultimate response.³ Design exerts its primary influence on the first 2 stages of the direct mail funnel, while the final stage of actual response is largely driven by targeting, timing, and the actual offer characteristics (De Wulf et al., 2000). Accordingly, our investigation on the design characteristics focuses on the intermediate opening and interest stages of the funnel.

2.3. Independent variables

The design characteristics are usually attributed to 4 core mail elements: (1) the envelope, (2) the cover letter, (3) any supplements (e.g., leaflets, brochures or catalogs), and (4) the response device. Selectively, 2 additional categories comprise add-ons (e.g., enclosure

of incentive) and covariates (e.g., characteristics of recipients). These elements contribute differently across the stages of the direct mail funnel. For example, envelope design characteristics and observable haptic cues are the main drivers of the opening behavior because the other elements are usually invisible to the recipients. Hence, we incorporate this distinction into our framework.

The majority of studies investigate a limited number of characteristics across selected mail elements with some notable exceptions (e.g., Bell et al., 2006; Bult, van der Scheer, & Wansbeek, 1997; De Wulf et al., 2000). The number of characteristics studied per mail element varies between 1 (e.g., Capon & Farley, 1976) and 14 (De Wulf et al., 2000). Additionally, the levels or the variants of the design characteristics investigated appear to be largely driven by the specific context of the cooperating organization. To avoid a bias in effect inference, we need to account for a rather comprehensive set of design elements across all 4 core mail elements and derive the levels of the design characteristics from a broader set of sources, e.g., from exploring our panel data, from the literature, and from industry expert interviews.

Only a few studies control for the effects of covariates (e.g., campaign volume). Not controlling for these effects can potentially cause biased estimates of the design characteristic's impact.

In sum, the literature review suggests the need for a study that covers a substantial portion of all campaigns rather than only selected mailings from single organizations. The study needs to span the direct mail response funnel with a focus on the “black box” that occurs prior to response, and it should employ a comprehensive set of design characteristics extracted from various sources. There is an additional need to control for various covariates that might exert significant influence on the direct mail funnel stages.

3. Conceptual framework

From the literature review, we infer that different funnel stages exist along the direct mail response process. These linear stages can be explicitly linked because the outcome at a specific stage depends on the outcome of the previous. For instance, at the first stage, a

³ Analogous funnel stages have been identified in other marketing contexts. For example, Gopalakrishna and Lilien (1995) propose a 3-stage model of industrial trade show performance with attraction, contact, and conversion efficiency as the performance metrics at each stage. Smith, Gopalakrishna, and Chatterjee (2006) employ a 3-stage model to assess and subsequently optimize integrated communications at the marketing-sales interface for a construction firm.

Table 1 (continued)

Study Author(s)	Dependent variable(s)			Design characteristics and covariates					
	Stage 1: Opening	Stage 2: Interest	Stage 3: Response	Envelope	Letter	Supplement	Response device	Others	Covariates
Capon and Farley (1976)		X	X						
Hozier and Robles (1985)			X					1	1
Beard et al. (1990)			X						
Gordon and Kellerman (1990)			X						
Sherman, Greene, and Plank (1991)			X						1
Williams, Beard, and Kelly (1991)			X						1
James and Li (1993)	X								
McMellon and Ducoffe (1995)	X	X							1
Seaver and Simpson (1995)			X						2
Smith and Berger (1996)			X						
Van der Scheer et al. (1996)			X						1
Bult et al. (1997)			X						4
Vriens et al. (1998)	X								
De Wulf et al. (2000)	X	X							
Bell et al. (2006)			X						5
Ledolter and Sweesey (2006)			X						
Bekkers and Crutzen (2007)			X						6
Diamond and Iyer (2007)	X	X							1
Current study (2013)	X	X							5

certain percentage of recipients pay elevated attention to the piece and might decide to open the envelope; others discard the mail piece without further attention. The ratio of opening to total recipients can then be defined as the OR. At the second stage, the mail recipients exhibit some level of interest in the other mail elements and read them. The recipients might eventually decide to keep the mail for further action (e.g., response). The percentage of recipients who keep the direct mail piece in relation to the number of recipients that open it can be defined as the KR. This measure thus reflects consumer interest. At the third stage, after deciding to keep the mail piece, the recipients might finally decide to respond to it. This results in the qualified response rate. As the direct mail recipients follow this staged process, they build up their commitment while moving step-by-step towards the offer, inducing them to behave consistently with the small prior commitments they have made. This link at the individual recipient level should be reflected in the linked subsequent stages at the campaign level. Taken together, the overall response rate that the managers usually observe builds up as described in Eq. (1):

$$\text{Response Rate} = \frac{\frac{\# \text{Recipients Opening}}{\text{Total } \# \text{Recipients}} * \frac{\# \text{Recipients Keeping}}{\# \text{Recipients Opening}} * \frac{\text{Total } \# \text{Responding}}{\# \text{Recipients Keeping}}}{100}$$

Opening Rate (OR)
Keeping Rate (KR)
Qual. Response Rate

Focus of our design study

(1)

Following the extant literature on direct mail effectiveness and information processing, the design characteristics exhibit the strongest effect at the first 2 stages of the direct mail funnel: OR and KR (Broadbent, 1958; De Wulf et al., 2000; Pieters & Wedel, 2004). Additionally, both ratios are necessary predecessors of response and thus provide managers with valuable diagnostics—analogue to the attention and intention measures used for other media. Similar to TV and print advertisements, direct mail pieces are exposures to stimuli that generate contact with the recipients of these campaigns. Opening

a mail item is equivalent to a qualified contact because the envelope and its design create a certain degree of curiosity and interest in further investigating the content of the mail item. Taking a closer look at the letter, the brochure and/or response device at the second stage reflects a larger extent of processing information. This elevated interest towards the offer, expressed in our KR measure, enables the repetition of the sender's messages, facilitating processing and increasing encoding opportunities. Reading and keeping a piece of mail can nurture the sharing of a firm's message with others and can help to form brand attitude (MacInnis & Jaworski, 1989). Hence, this study fills an important gap in the direct marketing research, where intermediate communication measures have been studied to only a limited extent (exceptions are De Wulf et al., 2000; Diamond & Iyer, 2007; Vriens et al., 1998).

Our conceptual model is shown in Fig. 1. The model includes an explicit link between OR and KR, as implied by the direct mail funnel specified in Eq. (1). In our model, both dependent variables are driven by design characteristics. We categorize these design characteristics along 2 dimensions. First, we group the general design characteristics according to the mail element as performed in previous studies: (1) envelope, (2) letter, (3) supplement, and (4) response device. We assume that the envelope characteristics exert a direct influence on the OR by definition. It is conceivable, however, that the direct mail recipients are able to gain a sense of the contents of the mail package even before opening the envelope, resulting in observational learning. To capture these haptic experiences, we incorporate several envelope content features when analyzing the OR, such as weight, supplements, or give-aways that might be sensed before opening. The design characteristics of the other mail elements cannot be observed at that time. Accordingly, the design characteristics of the other mail elements are assumed to influence the KR. Second, within each mail element, we categorize each design characteristic by its dominating nature, i.e., whether it (1) constitutes a visual design element, (2) identifies the originating sender, (3) represents a personalization cue, or (4) is a measure of information intensity. Third, as suggested in the literature, we investigate the effects of additional industry-specific characteristics along the mail elements, e.g., the position of the payment device in the case of charitable

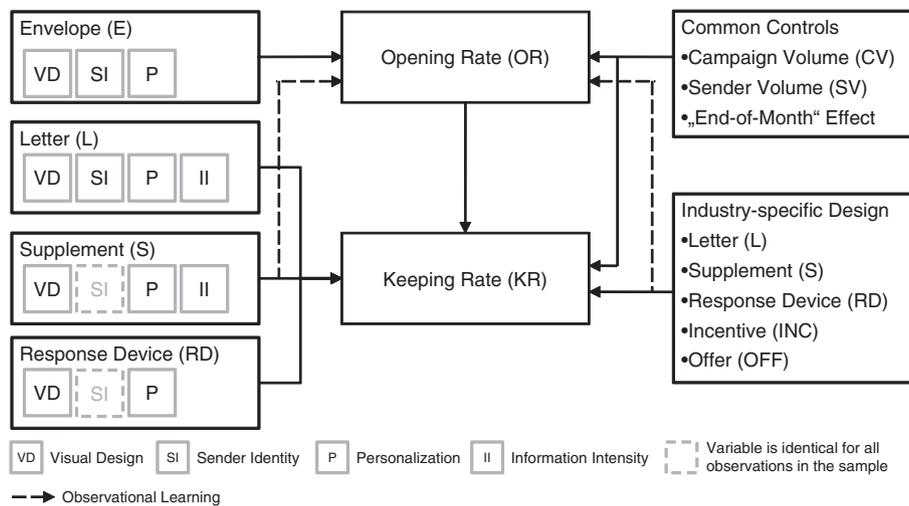


Fig. 1. Conceptual framework of present study.

mailings from Non-profit Organizations (NPOs) or information on the nearest branch for a financial service provider (FSP). Extending the mail element categories above, we add information on the included incentives (NPO) and offer-related information in both industries. These additional categories add contextual information that could either moderate the effect of the design characteristics or could have a direct effect on our dependent variables. Fourth, we introduce 3 covariates to control for the main drivers of mail performance apart from design: (1) the relative campaign volume within the respective industry, reflecting the selection approach; (2) the share of voice or annual sender volume, reflecting the sender's position in the respective industry and advertising channel; and (3) the "end-of-month" effect, as keeping behavior is most likely higher for the direct mail received at the end of the month because consumers have had less time to respond before sending it in for collection purposes and therefore tend to keep it.⁴ In the following section, we elaborate on the underlying theory and the effects of the direct mail design characteristics on the OR and the KR.

4. Theory on the effects of the design characteristics

4.1. Theoretical foundation

The inclusion of the 4 types of design characteristics discussed above can be motivated by the capacity theories of attention (e.g., Broadbent, 1958) as well as by information-processing models (e.g., MacInnis & Jaworski, 1989). According to Broadbent's (1958) filter theory, a consumer's perceptual system contains a filter mechanism. Among the many stimuli or messages presented, only those stimuli that possess salient physical characteristics are allowed through the filter and are subsequently actively processed. Hence, Broadbent's theory helps to explain the selectivity of attention. The theory implies that salient and familiar verbal or visual stimuli should be used to attract the consumers' attention. Interestingly, similar insights regarding saliency-based attention have been delivered in the field of neuroscience (e.g., Itti & Koch, 2001) and by related research in marketing (e.g., Van der Lans, Pieters, & Wedel, 2008; Zhang, Wedel, & Pieters, 2009). Examples of salient stimuli in a direct mailing are the use of teasers and headlines, postscripts, typographic accentuations, special envelope formats, colored illustrations or paper, and so forth.

With regard to the information processing models, the processing of an ad stimulus is a function of motivation, ability and opportunity (M-A-O), which are, in part, influenced by the physical properties

and design characteristics of the advertisement. More specifically, it is considered that advertisement design properties such as format and size, color, headlines, typography, and other creative elements play a crucial role in attracting consumers' attention (e.g., Pieters & Wedel, 2004; Pieters, Wedel, & Zhang, 2007) as well as in building persuasive and emotional effects (e.g., Percy & Rossiter, 1983; Smith, MacKenzie, Yang, Buchholz, & Darley, 2007; Yang & Smith, 2009). Based on these theories and research on the effects of design in other media, we assume that the 4 different types of direct mail design categories exhibit differential effects on the direct mail performance, particularly at the first 2 stages of the direct mail funnel.

4.2. The effects of direct mail design categories on the opening and keeping rates

4.2.1. Visual design

Our first category of variables refers to visual design elements such as color, illustrations, bold type or capital letters, extraordinary mailing formats, etc. The use of diverse visual stimuli and their effects on consumers' reactions has been extensively investigated in the context of print advertisements (e.g., Assael, Kofron, & Burgi, 1967; Percy & Rossiter, 1983; Pieters & Wedel, 2004). In particular, the effects of visual stimuli have been the subject of research in visual imagery (e.g., Rossiter, 1982; Rossiter & Percy, 1980). It has been shown that pictorial stimuli can facilitate persuasive communication in a variety of ways. For example, pictures can lead to more extensive mental processing because they are attention-getting devices (Finn, 1988; MacKenzie, 1986). In addition, pictures can improve the memorability of other semantic information. Research has generally supported the view that pictures can affect ad and brand attitudes, beyond the effects they have on the consumers' beliefs about the product (e.g., Miniard, Bhatla, Lord, Dickson, & Unnava, 1991). The direct marketing literature has provided some initial support for the effectiveness of using certain visual stimuli such as typographic accentuations and illustrations (Bult et al., 1997), teasers (Roberts & Berger, 1999; Van der Scheer et al., 1996; Vriens et al., 1998), or special envelope formats (Nash, 2000; Vriens et al., 1998).

4.2.2. Sender identity

The second category refers to the presentation of the originating sender's name and/or logo on the direct mail piece, which translates into the prominence of the brand element. These sender-related cues can be featured on all elements of the direct mail package. Contradicting theories on the effects of sender-related cues can be found in the literature (Pieters & Wedel, 2004). Some scholars argue that a prominent

⁴ We thank an anonymous reviewer for this suggestion. See also Section 5.1 for further details.

brand element drives more attention to the brand, which is a necessary condition for obtaining the desired brand-communication effects (e.g., Keller, 2007). In contrast, some advertising practitioners caution against highlighting the brand in advertising because the brand element might signal that the message is an advertisement in which consumers purportedly are not interested (e.g., Aitchinson, 1999; Kover, 1995).

In the context of direct mail design, most of the brand-related debate centers on whether the sender should be clearly displayed on the outer envelope or not. Featuring the sender's name can signal familiarity and trustworthiness to the recipient (Hoyer & MacInnis, 2007). Conversely, not placing the sender's name or logo is likely to create curiosity with the direct mail receiver (Nash, 2000; Roberts & Berger, 1999) and might result in higher ORs. However, this immediate effect might be counter-productive if the receiver feels deceived or irritated by the unexpected commercial content of the letter (Nash, 2000; Van Diepen, Donkers, & Franses, 2009b). The preceding discussion suggests that featuring the sender's name or brand in promotional campaigns can be dysfunctional. The prior studies on direct mail design did not show any significant effects from revealing the sender's identity on the envelope on the opening or the response behavior (Bell et al., 2006; De Wulf et al., 2000; Vriens et al., 1998).

4.2.3. Personalization

The third category reflects the degree of personalization for the direct mail design. Personalization is intimately connected with the idea of interactive marketing. Dillman (2007) offers personalization guidelines for surveys that are applicable to direct mail design as well. His personalization strategy is based on the guiding principle that the tone and content of a cover letter should reflect the style used in a business letter to an acquaintance who is not known to the sender. The specific elements of personalization proposed by Dillman are as follows: specific date (e.g., March 14th, 2013); the recipient's name and address; a personal salutation; a real signature in contrasting ink (i.e., a "pressed blue ball-point pen signature"); and letterhead rather than copied stationery (Dillman, 2007).

Prior research suggests that personalized advertising approaches might increase attention and response to offers (e.g., Ansari & Mela, 2003). However, personalization or customization is not beneficial under all circumstances (e.g., Kramer, Spolter-Weisfeld, & Thakkar, 2007; Zhang & Wedel, 2009) and can even be harmful if the personalized solicitations are perceived as intrusive (e.g., White, Zahay, Thorbjørnsen, & Shavitt, 2008). With regard to direct mail advertising, research has provided moderate support for the positive effects of personalization on response behavior (e.g., Bell et al., 2006; De Wulf et al., 2000; Hozier & Robles, 1985; James & Li, 1993). Studies investigating response rates to mail surveys have yielded mixed findings on personalization: in their review of 93 journal articles, Yu and Cooper (1983) find significant results showing the response-enhancing effects of personalization. In contrast, the more recent survey response studies failed to detect any significant effects from personalization on attention (Helgeson et al., 2002) and response rates (e.g., Gendall, 2005).

4.2.4. Information intensity

The last category of variables refers to the amount of information present in an advertisement. Within the M-A-O-framework, information intensity can affect the recipient's opportunity to process a message (MacInnis & Jaworski, 1989). From a memory perspective, it would appear that fewer message-points per given time frame and advertising space are preferable. One could argue that with less to learn or comprehend from a commercial communication, the likelihood of retention and subsequent attitude or behavior change should increase (Percy & Rossiter, 1980, p. 118). With too much information, only selected message points can be processed and stored effectively above a necessary threshold (Percy & Rossiter, 1980, p. 5).

Although this reasoning has intuitive appeal, it should be noted that the limited capacity of short-term memory is of less concern

if the receiver deliberately seeks exposure to the advertisement and actively attends to the content (Rossiter, 1982). For example, direct mail advertising often receives active attention from consumers once the envelope has been opened. Hence, unlike in print or TV ads, the typical technique in direct mail advertising is to provide the reader with sufficient information to achieve a decision to advance the response process (Rossiter, 1982, p. 103). Only Beard, Williams, and Kelly (1990) investigate the effects of information intensity empirically, i.e., response rates of long versus short cover letters in direct mailings, but they find no significant impact.

5. Methodology

5.1. Data and sample description

Our unique data set is based on a representative direct mail panel from GfK. This household panel consists of 3,000 households whose socio-demographics are representative of the entire population of the 35 million private German households. The panel is solely aimed at measuring the intermediate effects, namely the OR and KR, along the direct mail funnel. The panel does not measure the actual response.

The panel participants continuously collect any unsolicited and personally addressed direct mail piece that they receive. At the end of each month, the panel members send GfK all of the direct mailings that they have received during that month and that they do not want to keep. These mailings are either (i) unopened mailings that would normally be discarded right away, or (ii) opened mailings that would be discarded due to a lack of appeal for the recipient after checking the content. GfK scans all of these mail pieces, stores the images in a picture database, and records some key characteristics such as weight, envelope format, postage, or type of response device.

For those mailings that the panel members choose to keep for further consideration (e.g., to read the letter/brochure in greater detail or to respond to the offer at a later time), they are asked to fill out and send GfK a form listing all of these mailings line by line. The specific instruction for the panel participants is as follows: "Below, please fill in only those personally addressed direct mailings that you do not want to send to us, because you want to keep them. Please do not fill in any direct mailings that you send us." For each of these mail pieces, the panel participant is required to fill in the sender's name, the date the mailing was received, the type of mailing (postcard, letter or catalog), and the essential subject (slogan/theme) of the campaign. GfK uses this information to precisely match the individual mailings received by households with specific campaigns. The KR of a campaign is then calculated as the percentage of recipients in the panel who keep the corresponding mail piece in relation to the total number of recipients who opened the direct mail piece (see Eq. (1)). For this study, GfK provided us with the aggregate ORs and KR per campaign derived from this panel as well as access to sample copies of the respective direct mail pieces. The actual response rates are not available because this would require the cooperation of all of the organizations that sent direct mail pieces. These organizations generally regard their actual response rates as very sensitive information.

5.1.1. Sample description

Our sample comprises information on the largest direct mail campaigns (in terms of mailing volume) across a 1-year period from 2 different industries—non-profit organizations (NPOs) and financial service providers (FSPs). Both industries are characterized by a heavy reliance on direct mail campaigns (DMA, 2011; Van Diepen et al., 2009a,b). Together, they account for over 30% of the total mailing volume represented in the GfK direct mail panel and, thus, both belong in the top 5 industries employing direct mailings. Across both industries, we observe 677 distinct campaigns: 396 campaigns (58.5%) from 98 different organizations in the NPO subsample and 281 campaigns (41.5%) from 48 firms in the FSP subsample. Only 1 or 2 campaigns were executed by

54.1% (60.4%) of the NPOs (FSPs); 34.7% (18.8%) of the NPOs (FSPs) ran between 3 and 9 campaigns; and 14.2% (20.8%) of the firms ran 10 or more campaigns within the 1-year period. Of the mailing packages, 97.9% (98.0%), or nearly all, include a cover letter, 71.4% (65.8%) contain a supplement and 97.5% (80.1%) contain a response device (including a payment device in the NPO sample).

5.1.2. Dependent variables—direct mail funnel

GfK records the receipt of the distinct direct mail pieces by household and how many of these pieces of mail were opened or kept. Thus, GfK computes the OR and KR per campaign as described in Eq. (1). The mean OR for the NPO (FSP) campaigns is 87.4% (88.9%). These values are consistent with the evidence from the direct mail literature and practice, indicating the high propensity of consumers to open and read direct mailings (e.g., Nielsen, 2009; Deutsche Post, 2006; Stone & Jacobs, 2008, p. 412). The average KR for the NPO (FSP) industry is 8.2% (5.3%) per campaign. These percentages are very close to the response intention percentages of 8.1% (4.3%) in the NPO (FSP) industry found in a recent U.S. study (DMA, 2011, p. 28), again lending international validity to the German data. The actual response rates are usually substantially lower (1.38–3.42%; DMA, 2011) and sufficiently distinct, thus underlining the importance of the KR as an intermediate measure of the direct mail response funnel.

5.1.3. Independent variables—design elements

To identify and operationalize the design elements for our analysis, we follow a 4-step procedure. First, we search for elements that relate to the theories of attention capacity and information-processing models as well as to our framework by mail element (e.g., envelope) and design characteristic (e.g., personalization). Second, we check the literature in Table 1 and the prominent textbooks (e.g., Geller, 2002; Jones, 1997; Nash, 2000; Roberts & Berger, 1999; Stone & Jacobs, 2008) for cues on the relevant design elements. Third, we scan our database across both industries and collect a variety of design elements empirically. Fourth, we conduct a series of interviews with industry experts that have NPO and FSP backgrounds as well as with specialized advertising agencies, Germany's largest lettershops, and Deutsche Post DHL. Similarly, our choice for the specific attribute levels is informed. As a result, we arrive at a collection of design variables, their operationalization, and their expected impact on the OR and the KR as shown in Table 2.

Only a few design characteristics (e.g., product category, format, postage and weight) are tracked and recorded by GfK in a systematic fashion. We manually classify and code all other (design) characteristics for each of the 677 campaigns based on the original direct mail piece provided by GfK. The vast majority of design characteristics are rather objective in nature (e.g., presence of teaser, type of information in letterhead, length of headline). For the few subjective variables (e.g., concreteness of donation purpose, color proportion), we conduct cross-checks among the coders to ensure inter-rater reliability for all of the data accumulated. For brevity, we do not explain each variable in detail here, but we provide an overview in Table 2. Table 2 also provides references to the previous direct mail design studies (Table 1) that have analyzed particular design variables in a similar way. As observed, many of the design variables included in our study have not been empirically examined in the prior research.

5.1.4. Common design characteristics across industries

In total, we record 36 design characteristics with 68 distinct design attributes across mail elements and design categories that are common across both industries. Some design characteristics contain multiple attributes, either representing different aspects of the respective characteristic (e.g., 3 different types of accentuations) or different degrees of implementation (e.g., the proportion of color in the supplement). For these, we distinguish between the mutually exclusive and the overlapping design attributes in Table 2. Most of these

variables are binary, indicating whether a design characteristic or its attribute is observed (= 1) in a campaign or not (= 0). Only a few variables are metric, such as the length of headline or the number of pages in the supplement. We indicate these variables in Table 2. The frequencies or the means per industry and for the pooled data set are reported there.

5.1.5. Industry-specific variables

Based on the theoretical considerations, the extant literature, and the interviews with industry experts, we additionally record 21 industry-specific variables: 10 (with 31 design attributes) for the NPO and 11 (with 29 design attributes) for the FSP subsamples. These industry-specific design characteristics serve 2 purposes. First, the literature on direct marketing suggests that some of the effects of the direct mailing design characteristics are highly industry-specific (e.g., the type of testimonial for NPOs or awards and exemplary calculations for the FSP industry; Smith & Berger, 1996; Stone & Jacobs, 2008). Second, the design characteristics simultaneously act as controls: the expert interviews indicate that one-time donations require a different approach than continuous donation requests and hence the design of the mailing has to be adapted accordingly. Correspondingly, in the FSP industry, selling investment funds involves a different communication approach than selling consumer loans. Accounting for these differences helps to avoid biases when assessing the impact of the common design characteristics. Table 2 also contains these variables and the respective information.

5.1.6. Common controls

Based on the literature review and the expert interviews, we integrate 3 variables as common controls. First, the relative campaign volume (CV) is calculated by dividing the number of mailings per campaign by the total annual campaign volume in the NPO or FSP industries. Accordingly, the CV controls for the relative selectiveness of firms in choosing mail recipients in their campaigns (Bult & Wansbeek, 1995; Donkers et al., 2006). For example, target groups, and likewise CV, will usually be smaller if ambitious response goals and specific target groups guide the selection process. Second, we summate CVs for each NPO and FSP, resulting in the medium-specific relative annual sender volume (SV), i.e., reflecting the organization's share of voice in the letter box of households. This variable accounts for the differences in share of voice, which are typically higher for larger organizations. Both controls, CV and SV, are also tested for nonlinear effects via squared terms (i.e., CV^2 and SV^2). Third, we control for the average reception date within a month for all campaigns (1, 2, ..., 31), which was provided to us by GfK. Given the nature of how the data are collected (i.e., panel members send direct mailings to GfK at the end of the month), it is conceivable that keeping behavior could be higher for the direct mail received at the end of the month because consumers have less time to respond and therefore choose to keep it (the "end-of-month" effect). This variable reflects the number of days that have passed in a month. Hence, following this line of argument, the larger the number is, the higher the KR should be. Fourth, we add an effect-coded industry dummy to the pooled analysis to account for industry-specific effects (NPO = 1; FSP = -1).

5.2. Modeling and estimation approach

5.2.1. Model specification

Both dependent variables, the OR and the KR, are measured as fractions with a double truncation at 0 and 1. Accordingly, we employ a logit transformation to both variables to reduce their departures from non-normality (Ailawadi, Pauwels, & Steenkamp, 2008; Krafft, Albers, & Lal, 2004) and rename them LOR and LKR, respectively. Corresponding to our conceptual framework (cf. Fig. 1), we formulate regression equations for both dependent variables, LOR and LKR, for each sample $i = 1, 2, 3$ (NPO, FSP, and the pooled sample, respectively).

Table 2
Variable descriptives, expected impact, and rationale.

Mail element	Type of variables			Sample descriptives ^b						Expected impact				
	Type of design	Parameter OR KR	Characteristic	Operationalization ^b	Selected sources ^c	Obs. learning	NPO (396 Mails)	FSP (281 Mails)	Both industries	OR	KR	Major rationale OR; KR		
Envelope (E)	VD	β_{i1}	Weight ^a	>20 g	New (1)	Yes	94	46	140	+	0	Curiosity; n.a.		
		β_{i2}	Format ^a	Special and large sizes	6,7,10, (11,12,13)	Yes	50	15	65	+	0	Curiosity; n.a.		
		β_{i3}	Presence of address window	No/yes	6,7 (12,13)			391	274	665	+	0	Preview; n.a.	
		β_{i4}	Presence of teaser	No/yes	4,6,10 (11,12,13,14)			211	119	330	+	+/-	Curiosity; met expectation?	
		β_{i5}	Teaser content	Urgency appeal	New (1) (13,14)			57	11	68	+	+/-	Curiosity; met expectation?	
		β_{i6}		Questioning techniques	7 (11,13,14)			7	3	10	+	+/-	Curiosity; met expectation?	
		β_{i7}		Sweepstake/freebie	New (1) (11,13,14)			12	5	17	+	+/-	Curiosity; met expectation?	
		β_{i8}	Colored design	No/yes	6,7 (11,13,14)			296	99	395	+	0	Attention; n.a.	
		β_{i9}	Promotional design on back side	No/yes	New (1) (11)			151	24	175	+	0	Attention; n.a.	
		β_{i10}	Pictures/illustrations	No/yes	3,4,6 (11,12,13)			3,4,6 (11,12,13)	42	210	+	0	Attention; n.a.	
	SI	β_{i11}	Sender's name on front side	No/yes	4,6,10 (11,12,14)			168	199	501	+	0	Familiarity, Trust; n.a.	
		β_{i12}	Sender's name on back side	No/yes	4,6,10 (11,12,14)			143	61	204	+	0	Familiarity, Trust; n.a.	
	P	β_{i13}	Postage placement ^a	Stamp	4,6 (11,12)			20	2	22	+	0	Personalization; n.a.	
		β_{i14}	(mutually exclusive attributes)	Postage paid	4 (12)			339	189	528	0	0	less personal	
	-		With ink stamp or in window	4 (12)			37	90	127	0	0	less personal		
Letter (L)	VD	γ_{i1}	Presence of headline	No/yes	New (1) (11,12)			215	254	469	+		n.a.; focal information	
		γ_{i2}	Length of headline (metric)	No. of words	New (1)			4.8	9.5	6.7	\cap		n.a.; too many is worse	
		γ_{i3}	Post scriptum	Presence no/yes	4,6,10 (11,12,15)			302	198	500	+		n.a.; attention, summary	
		γ_{i4}		Summary of offer	4,5,6,10 (11,2)			203	25	228	+		n.a.; attention, summary	
		γ_{i5}		New aspect/info	5,10 (12)			87	77	164	+		n.a.; attention, summary	
		γ_{i6}		Response appeal	New (1) (12)			13	103	116	+		n.a.; attention, action	
		γ_{i7}	Topography: letters with serifs	No/yes	New (1) (11,12)			104	73	177	+		n.a.; attention	
		γ_{i8}		Bold type	5 (11)			134	261	395	+		n.a.; attention	
		γ_{i9}	Accentuations	Underlines	New (1) (11,12)			162	19	181	+		n.a.; attention	
		γ_{i10}		Capital letters	New (1) (11)			14	26	40	+		n.a.; attention	
		γ_{i11}	Color of paper	White vs. colored	6			390	279	669	0		n.a.; normal, deviation attention	
		γ_{i12}	Color of font	Uniform black/blue vs. partly colored	6 (11)			16	58	74	+		n.a.; attention	
		γ_{i13}	Colored background print	No/yes	New (1)			18	11	29	+		n.a.; attention	
		γ_{i14}	Colored illustration	No/yes	5,10 (12)			281	105	386	+		n.a.; attention, easier processing	
	SI	γ_{i15}	Content of letter head	Logo	New (1)			368	262	630	+		n.a.; trust	
		γ_{i16}		Address	New (1)			280	201	481	+		n.a.; trust	
		γ_{i17}		Phone number	New (1) (11)			209	123	332	+		n.a.; trust	
		γ_{i18}		Fax number	New (1)			186	43	229	+		n.a.; trust	
		γ_{i19}		Website	New (1)			171	60	231	+		n.a.; trust	
		γ_{i20}		Photo of sender	New (1)			103	6	109	+		n.a.; trust	
		γ_{i21}		E-mail	New (1)			136	14	150	+		n.a.; trust	
		γ_{i22}		Toll-free phone number	New (1) (11)			11	11	22	+		n.a.; trust	
		γ_{i23}	Presence of testimonial	No/yes	8			52	36	88	+		n.a.; trust	
		P	γ_{i24}	Presence of calendar date	No/yes	4			350	271	621	+		n.a.; recency
			γ_{i25}	Current calendar date	No/yes	New (1)			350	253	603	+		n.a.; recency
	γ_{i26}		Presence of sender's signature	No/yes	6 (11,12)			379	271	650	+		n.a.; personal	
	γ_{i27}		Length of letter	> 1 page	2,6 (11,12,13,14)	Yes		145	32	177	+	\cap	curiosity; too much is worse	
	II NPO	β_{i15}	Tonality	Factual	New (1) (12)			72			-		n.a.; likely less successful	
		-	(mutually exclusive attributes)	Emotional	New (1) (12)			324			+		n.a.; more involvement	
		$\gamma_{i,60}$	Concreteness of donation purpose	Concrete	New (1)			148			+		n.a.; actual demand obvious	
		-	(mutually exclusive attributes)	Vague	New (1)			248			-		n.a.; less involvement	
		$\gamma_{i,61}$	Types of testimonials	Doctor	New (1)			27			+		n.a.; high reputation, trust	
		$\gamma_{i,62}$		Celebrity	New (1)			19			+		n.a.; high reputation, trust	
$\gamma_{i,63}$			Helper	New (1)			3			+		n.a.; "doer", trust		
-	(mutually exclusive with presence of testimonial)	Others	New (1)			3			0		n.a.; neutral as no relation			

	FSP		$\gamma_{2,59}$	Time-limited offer	No/yes	New (1)			86		+	n.a.; urgency	
			$\gamma_{2,60}$	Offer details	No/yes	New (1)			43		+	n.a.; information details	
			$\gamma_{2,61}$	Restrictive terms and conditions (e.g., credit rating)	No/yes	New (1)			81		–	n.a.; exclusion	
			$\gamma_{2,62}$	Information on nearest branch	No/yes	New (1)			33		+	n.a.; helpful information	
			$\gamma_{2,63}$	Information on personal advisor/contact	No/yes	New (1)			37		+	n.a.; helpful information	
Supplement (S)		β_{116}	γ_{128}	Presence of Supplement	No/yes	5,10	Yes	294	185	479	+	+	curiosity; information
	VD		–	Color proportion (mutually exclusive attributes)	0% Colored	New (1) (11,12,13)		12	1	13	–	–	n.a.; attention
			γ_{129}		Up to 25% colored	New (1)		67	6	73	0	0	n.a.; attention
			γ_{130}		26%–50% Colored	New (1)		71	49	120	0	0	n.a.; attention
			γ_{131}		51%–75% Colored	New (1)		49	83	132	+	+	n.a.; attention
			γ_{132}		76%–100% Colored	New (1)		95	46	141	+	+	n.a.; attention
			γ_{133}	Picture theme	Achievement of goal	New (1)		86	60	146	+	+	n.a.; attention, involvement
			γ_{134}		Person	New (1)		19	46	65	+	+	n.a.; attention, involvement
	P		γ_{135}	Personalization	No/yes	5,10		26	38	64	+	+	n.a.; involvement
	II		γ_{136}	Length of brochure (metric)	No. of pages	New (1) (12)		4.1	1.8	3.1	0	0	n.a.; too long is worse
	FSP		$\gamma_{2,64}$	Exemplary calculations	No/yes	New (1)			38		+	+	n.a.; understanding
			$\gamma_{2,65}$	Award as supportive argument	No/yes	New (1)			33		+	+	n.a.; trust
Response device (RD)		β_{117}	γ_{137}	Presence of response device	No/yes	New (1)	Yes	153	225	378	+	+	curiosity; convenience
	VD		γ_{138}	Type of response device ^a	Response form	New (1)		134	225	359	+	+	n.a.; convenience
			γ_{139}		Pre-stamped envelope	New (1) (12)		4	152	156	+	+	n.a.; more convenience
			γ_{140}		Non-stamped envelope	New (1) (12)		19	7	26	+	+	n.a.; convenience
			γ_{141}		Reply card	New (1) (12)		22	27	49	+	+	n.a.; convenience
			γ_{142}		Postage-paid reply card	New (1) (12)		3	11	14	+	+	n.a.; more convenience
			–	Color proportion (mutually exclusive attributes)	0% Colored	6		31	15	46	0	0	n.a.; attention
			γ_{143}		Up to 25% colored	6		69	33	102	0	0	n.a.; attention
			γ_{144}		26%–50% Colored	6		17	111	128	+	+	n.a.; attention
			γ_{145}		51%–75% Colored	6		31	23	54	+	+	n.a.; attention
			γ_{146}		76%–100% Colored	6		41	7	48	+	+	n.a.; attention
	P		γ_{147}	Personalization of recipient's data	No/yes	9 (12)		367	241	608	+	+	n.a.; involvement
			γ_{148}	Response channel options	Fax	6		28	63	91	+	+	n.a.; convenience
			γ_{149}		Phone number with charge	New (1)		2	64	66	+	+	n.a.; convenience
			γ_{150}		Toll-free phone number	New (1) (12)		20	11	31	+	+	n.a.; convenience
			γ_{151}		Website	New (1)		11	37	48	+	+	n.a.; convenience
			γ_{152}		E-mail	New (1)		10	7	17	+	+	n.a.; convenience
	NPO		$\gamma_{1,64}$	Presence of payment device	No/yes	New (1)		373			+	+	n.a.; convenience
			–	Position of payment device (mutually exclusive attributes)	Separately included	5,6 (12)		292			+	+	n.a.; more convenience
			$\gamma_{1,65}$		Attached to letter	5,6 (12)		81			+	+	n.a.; convenience
	FSP		$\gamma_{2,66}$	Response options	Fill out application form	New (1)			87		+	+	n.a.; convenience
			$\gamma_{2,67}$		Request personal consultation in nearest branch	New (1)			42		+	+	n.a.; convenience
			$\gamma_{2,68}$		Request additional information	New (1)			31		+	+	n.a.; convenience
			$\gamma_{2,69}$		Request offer	New (1)			20		+	+	n.a.; convenience
			$\gamma_{2,70}$		Participate in lottery	New (1)			12		+	+	n.a.; convenience
			$\gamma_{2,71}$		Others	New (1)			33		+	+	n.a.; convenience
			$\gamma_{2,72}$	Information required from recipient	Further personal details	New (1)			118		–	–	n.a.; effort required
			$\gamma_{2,73}$		Banking details	New (1)			92		–	–	n.a.; effort required
			$\gamma_{2,74}$		Signature	New (1)			62		–	–	n.a.; effort required
			$\gamma_{2,75}$		Phone number	New (1)			32		–	–	n.a.; effort required
			$\gamma_{2,76}$		Mailing address	New (1)			15		–	–	n.a.; effort required
			$\gamma_{2,77}$	Pre-written answers	No/yes	New (1)			18		+	+	n.a.; convenience
Incentives (INC)	NPO	$\beta_{1,23}$	$\gamma_{1,66}$	Presence of give-away	No/yes	New (1)	Yes	172			+	+/-	curiosity; guilt, reciprocity or waste
			$\gamma_{1,67}$	Kind of give-away (mutually exclusive attributes)	Address sticker	New (1)		59			+/-	+/-	n.a.; guilt, reciprocity or waste
			$\gamma_{1,68}$		Postcards	New (1)		44			+/-	+/-	n.a.; guilt, reciprocity or waste
			$\gamma_{1,69}$		Calendar	New (1)		23			+/-	+/-	n.a.; guilt, reciprocity or waste
			–		Sticker	New (1)		6			+/-	+/-	n.a.; guilt, reciprocity or waste

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Table 2 (continued)

Mail element	Type of variables		Characteristic	Operationalization ^b	Selected sources ^c	Sample descriptives ^b			Expected impact				
	Type of design	Parameter OR KR				Obs. learning	NPO (396 Mails)	FSP (281 Mails)	Both industries	OR	KR	Major rationale OR; KR	
Offer (OFF)	NPO	$\gamma_{1,70}$	Value appearance of give-away (mutually exclusive attributes)	Others	New (1)	40				+/-	n.a.; guilt, reciprocity or waste		
		$\gamma_{1,71}$		Low	4	40				+	n.a.; involvement or reciprocity		
		-		Medium	4	113				+	n.a.; guilt, reciprocity		
		$\gamma_{1,72}$	Charitable category ^a	High	4	19				-	n.a.; waste		
		$\gamma_{1,73}$		Child aid	New (1)	128				+/-	n.a.; n.a.		
		$\gamma_{1,74}$		Diseases/disabilities	New (1)	74				+/-	n.a.; n.a.		
		$\gamma_{1,75}$		Environment/animals	New (1)	63				+/-	n.a.; n.a.		
		$\gamma_{1,76}$		Foreign aid	New (1)	36				+/-	n.a.; n.a.		
		$\gamma_{1,77}$		Religion/church	New (1)	14				+	n.a.; n.a.		
		$\gamma_{1,78}$		Goal/intention of charitable mail ^a	One-time donation	New (1)	371					n.a.; lower commitment	
	$\gamma_{1,79}$	Continuous donations	New (1)	119				-	n.a.; higher commitment				
	$\gamma_{1,80}$	Mere information	New (1)	17				+/-	n.a.; guilt or waste				
	$\gamma_{1,81}$	Recruiting new members	New (1)	16				-	n.a.; higher commitment				
	$\gamma_{1,82}$	Thank-you letter	New (1)	15				+	n.a.; involvement				
	$\gamma_{1,83}$	Adoption/sponsorship	New (1)	8				-	n.a.; higher commitment				
	FSP	$\gamma_{2,78}$	Product category ^a (mutually exclusive attributes)	Loans	New (1)			132			+/-	n.a.; n.a.	
		$\gamma_{2,79}$		Savings/investments	New (1)			40			+/-	n.a.; n.a.	
		$\gamma_{2,80}$		Stocks/funds	New (1)				34			+/-	n.a.; n.a.
		$\gamma_{2,81}$		Credit card	New (1)				20			+/-	n.a.; n.a.
		$\gamma_{2,82}$		Retirement provisions	New (1)				10			+/-	n.a.; n.a.
$\gamma_{2,83}$		Home purchase savings		New (1)				9			+/-	n.a.; n.a.	
$\gamma_{2,84}$		Information, no offer		New (1)				7			+/-	n.a.; n.a.	
$\gamma_{2,85}$		Investment advice		New (1)				2			+/-	n.a.; n.a.	
	-	Others	New (1)				27			+/-	n.a.; n.a.		
Opening rate		$\gamma_{1,58}$											
Common Controls	$\beta_{118}\beta_{119}$	$\gamma_{153}\gamma_{154}$	Campaign Volume (metric) (main effect and squared)		New (1)	0.0	0.0	0.0		-	-	higher volume less targeted	
	$\beta_{120}\beta_{121}$	$\gamma_{155}\gamma_{156}$	Firm Volume (metric) (main effect and squared)		New (1)	0.0	0.0	0.0		+	+	Bigger brand and higher trust	
	β_{122}	γ_{157}	"End of Month"-Effect (metric)		New (1)	17.6	14.6	16.5		-	-	urgency to check before mail-in	
	$\beta_{3,24}$	$\gamma_{3,59}$	Industry Dummy		n.a.							n.a.; n.a.	

VD = visual design, SI = sender identity, P = personalization, II = information intensity, NPO/FSP = industry-specific design variable; n.a. = not applicable.

^a Record by GfK.

^b Item frequency for dummy variables (yes) and means for metric variables.

^c Sources: 1 New, based on theory, expert interviews and empirical assessments; Empirical Studies (see Table 1): 2 Beard et al. (1990); 3 Bekkers and Crutzen (2007); 4 Bell et al. (2006); 5 Bult et al. (1997); 6 De Wulf et al. (2000); 7 James and Li (1993); 8 Ledolter and Sweesey (2006); 9 Van der Scheer et al. (1996); 10 Vriens et al. (1998); Textbooks: 11 Geller (2002); 12 Jones (1997); 13 Nash (2000); 14 Roberts and Berger (1999); 15 Stone and Jacobs (2008)—Textbook sources are no (refereed) empirical studies.

In each of these 3 samples, we have a different number of $j(i) = 1, 2, \dots, J(i)$ campaigns ($J(1) = 396$, $J(2) = 281$, $J(3) = 677$, respectively). To analyze the effects of $K(i)$ sample-specific independent variables on the respective dependents (see Table 2 for details), we employ an OLS regression on the respective equations specified in Eqs. (2) and (3):

$$\text{lor}_{ij} = \beta_{i0} + \sum_{k=1}^{K(i)} \beta_{ik} x_{ijk} + u_{ij} \quad (2)$$

In Eq. (2), lor_{ij} refers to the dependent variable, the logit of the OR, in sample i for campaign j . Across campaigns, the dependent variable is explained by a sample-specific set of parameters (β_{ik}) and a corresponding set of explanatory variables (x_{ijk}), resulting in a normally distributed error (u_{ij}). Across all samples, the parameters include an intercept (β_{i0}) and 11 design characteristics for the envelope with 15 design attributes, of which one is defined by the other 2 exclusive alternatives ($\beta_{i1}, \dots, \beta_{i14}$, see Table 2). Additionally, we incorporate several design characteristics that indicate observational learning, where the recipients might sense special content in the direct mail piece. Apart from weight and format (β_{i1}, β_{i2}), which are already subsumed under the envelope characteristics, we associate letter length and the presence of a supplement or a response device with observational learning ($\beta_{i15}, \dots, \beta_{i17}$). The presence of a give-away is only relevant for the NPO industry (β_{i23}). Moreover, the controls CV and SV with their respective squared terms for testing a potentially nonlinear influence as well as the “end-of-month” effect enter the equation to control for the firms’ selectiveness in choosing mail recipients and firm brand effects ($\beta_{i18}, \dots, \beta_{i22}$). For the pooled analysis, we add an effect-coded industry dummy ($\beta_{3,24}$) to account for the industry-specific effects.

$$\text{lkr}_{ij} = \gamma_{i0} + \sum_{k=1}^{K(i)} \gamma_{ik} z_{ijk} + v_{ij} \quad (3)$$

In Eq. (3), lkr_{ij} refers to the dependent variable, the logit of KR, in sample i for campaign j . Across campaigns, the dependent variable is explained by a sample-specific set of parameters (γ_{ik}) and a corresponding set of explanatory variables (z_{ijk}), resulting in a normally distributed error (v_{ij}). Across all samples, the parameters include an intercept γ_{i0} , 15 design characteristics for the letter with 27 design level attributes ($\gamma_{i1}, \dots, \gamma_{i27}$), 4 characteristics for the supplement with 8 design level attributes ($\gamma_{i28}, \dots, \gamma_{i36}$) and 4 characteristics for the response device with 16 design level attributes ($\gamma_{i37}, \dots, \gamma_{i52}$).⁵ Analogous to Eq. (2), we account for the potential (nonlinear) effects of CV and SV as well as for the “end-of-month” effect ($\gamma_{i53}, \dots, \gamma_{i57}$). To test the link between the 2 stages, we include OR in both industries (γ_{i58}). For the pooled analysis, we again add an industry dummy ($\gamma_{3,59}$) to account for the industry-specific effects.

In the NPO (FSP) model, we extend the Z_1 (Z_2) vector by the 10 (11) industry-specific variables from Table 2 ($\gamma_{1,59}, \dots, \gamma_{1,83}$; $\gamma_{2,59}, \dots, \gamma_{2,85}$, respectively).

To limit the industry sample size effects in the pooled analysis, we weight all cases from the NPO (FSP) industry with a factor of .8548 (1.2046).

5.2.2. Variable selection

The specification of the full model incorporates a large number of parameters across both equations and thus requires a systematic reduction of variables to arrive at a parsimonious model. To achieve this reduction, we first estimate a full model with all of the available independent variables for both equations in each of the 2 industries. Next, we drop all of the variables with t -values smaller than 1 because only variables with t -values larger than 1 add more information than noise. This variable selection strategy is widely used in the literature

⁵ As some design level attributes are mutually exclusive, they require 1 parameter less (see Table 2 for details).

(e.g., Dekimpe & Hanssens, 1995; Krafft et al., 2004; Pesaran, Pierse, & Lee, 1993).

5.2.3. Robustness checks

We specifically test for linear model assumptions. To assess the degree of multicollinearity, we calculate the bivariate correlations and the variance inflation factors (VIFs) (see the correlation matrices and the VIFs in Appendix). In the OR models, all of the VIF scores are below 6 and thus do not exceed the critical values (Belsley, Kuh, & Welsh, 2004). For instance, the highest VIF scores for the full OR model in the NPO industry are 3.609 and 3.102 for campaign volume and its squared equivalent, respectively; in the FSP industry, they are 5.893 and 5.743 for firm volume and its squared equivalent, respectively. Both VIF values are somewhat lower in the final model, as can be expected after variable elimination. For the full KR models, we initially find substantially higher VIFs for the 12 variables in each industry (e.g., the VIFs for presence and type of response device were 56.478 and 46.320, respectively, for NPOs; the VIFs for presence and color proportion of the brochure 51–75% were 213.616 and 190.888, respectively, for FSPs). However, in the final KR models, these variables are eliminated and the VIFs of all of the remaining variables fall well below the critical values.⁶ In the final models, the correlations between the variables are also relatively low, with the vast majority of correlation coefficients below .3. Thus, multicollinearity does not affect our final results. Both the Breusch–Pagan–Godfrey test and the White test indicate a substantial level of heteroscedasticity. Hence, we correct for heteroscedasticity by applying White’s (1980) correction to derive robust standard errors. Furthermore, we control for correlated error terms between the OR and the KR model by applying Breusch and Pagan’s Lagrange Multiplier test (Breusch & Pagan, 1980). The correlation between the residuals of our final OR and KR models are below .10 for both FSPs and NPOs, resulting in insignificant Lagrange multipliers (p -value NPO = .63; p -value FSP = .36). Accordingly, the OR and KR equations can be estimated independently. Nevertheless, we test our final estimation results for the OR and the KR by also running a Seemingly Unrelated Regression (Zellner, 1962) and find no distinct results with regard to both the relative effects of the variables and their significance levels. With the OR being the dependent variable in Eq. (2) and a potential predictor in Eq. (3), we also conducted Hausman’s (1978) residual test to account for any potential endogeneity problems caused by the simultaneity of the OR in the first estimation step. The test results do not indicate any need to modify our models and our estimation approach in the first step, and the OR is subsequently dropped in the second step for both industries.

6. Empirical results

6.1. Direct mail funnel and the impact of design characteristics

First, we report the findings on the connection between the 2 stages of the direct mail funnel as well as the impact of the design characteristics at those stages, represented by the OR and KR, respectively. Concerning the relationship between the OR and the KR of campaigns, the positive spill-over effect presumed in our conceptual model (see Fig. 1) is not confirmed. In neither of the 2 industries do we find a significant effect for the OR on the KR. With t -values of $-.29$ (NPO) and $.99$ (FSP), the OR was dropped from the KR model in the initial stage of the variable selection process because it had t -values smaller than 1. This finding implies that a higher/lower OR does not imply a higher or lower KR. Both rates are statistically independent of each other for both industries.

In Table 3, we report the estimation results for the first funnel stage for the 2 industries (see Eq. (2)) regarding the common and

⁶ We selectively included variables with high VIF scores and t -values lower than 1 in the final models but were unable to detect additional significant effects for these variables. Hence, we did not extend our final models further.

Table 3
Empirical results on opening rates.

Variables	NPO			FSP			Weighted pooled analysis		
	Parameter	Estimate (SE)	t	Parameter	Estimate	t	Parameter	Estimate (SE)	t
Constant	$\beta_{1,0}$	3.959 (.281)	14.11***	$\beta_{2,0}$	7.605 (1.197)	6.35***	$\beta_{3,0}$	4.890 (.328)	14.90***
Visual design:									
Weight: > 20 g	$\beta_{1,1}$	.412 (.276)	1.50	$\beta_{2,1}$	1.571 (.399)	3.94***	$\beta_{3,1}$	.948 (.250)	3.79***
Format: special and larger sizes	$\beta_{1,2}$	.917 (.380)	2.42***	$\beta_{2,2}$	-1.589 (.814)	-1.95	$\beta_{3,2}$	.333 (.365)	.91
Presence of address window				$\beta_{2,3}$	-.937 (.918)	-1.02			
Presence of teaser				$\beta_{2,4}$	-1.772 (.419)	-4.23***	$\beta_{3,4}$	-.830 (.204)	-4.07***
Teaser: questioning technique	$\beta_{1,6}$	3.020 (.829)	3.64***				$\beta_{3,6}$	2.253 (.997)	2.26**
Colored design	$\beta_{1,8}$	-1.773 (.279)	-6.35***	$\beta_{2,8}$	-1.487 (.447)	-3.33***	$\beta_{3,8}$	-.495 (.224)	-2.22***
Promotional design on back side	$\beta_{1,9}$	.712 (.237)	2.99***	$\beta_{2,9}$	-.836 (.543)	-1.54	$\beta_{3,9}$	.415 (.241)	1.72
Sender identity:									
Sender's name on front side				$\beta_{2,11}$	-2.096 (.374)	-5.61***	$\beta_{3,11}$	-.838 (.229)	-3.67***
Personalization:									
Postage placement; postage paid				$\beta_{2,14}$	-1.342 (.296)	-4.54***	$\beta_{3,14}$	-.982 (.254)	-3.87***
Observational learning:									
Length of letter				$\beta_{2,15}$	.764 (.508)	1.51			
Common controls:									
Campaign volume	$\beta_{1,18}$	-1.024 (.238)	-4.31***	$\beta_{2,18}$	.153 (.154)	1.00	$\beta_{3,18}$	-.290 (.195)	-1.49
Campaign volume squared	$\beta_{1,19}$	.139 (.064)	2.17**				$\beta_{3,19}$	.038 (.046)	.83
Firm volume	$\beta_{1,20}$	.469 (.194)	2.42**	$\beta_{2,20}$	-.625 (.309)	-2.02**	$\beta_{3,20}$	-.251 (.177)	-1.42
Firm volume squared				$\beta_{2,21}$	.518 (.179)	2.89***	$\beta_{3,21}$	.200 (.123)	1.62
Industry dummy							$\beta_{3,24}$	-.171 (.125)	1.37
Adj. R ²		.173			.260			.116	
F-Statistic (probability)		10.127***			9.200***			7.829***	

a. OLS-Model estimated with White's (1980) correction for heteroscedasticity (robust standard errors).

*** sig. $p < .01$.

** sig. $p < .05$.

industry-specific design effects on the OR. We also report a pooled analysis across the 2 industries, where the samples are weighted by size and only the effects that are significant at the 5-percent level (2-sided, $t \geq 1.97$) in either of the 2 industries are kept. The overall goodness-of-fit criteria indicate a reasonable explanatory power for our parsimonious models for the 2 industries with adj. R²s of .173 for NPOs and .260 for FSPs. Table 4 shows the estimations per industry and the weighted pooled analysis for the KR. The adjusted R² for the NPO is .340, while it is lower for FSPs with a value of .164. For both the OR and the KR equations, the adjusted R²s are lower or similar for the weighted pooled analysis, with values of .116 (OR) and .173 (KR).

6.2. Impact of design characteristics by category

We base our assessments of the effects of each design characteristic on the t-statistics (see Tables 3 and 4). In our discussion, we focus on the effects with a p-value < .05.

6.2.1. Visual design category

Regarding the OR, a colored envelope design for the envelope has negative main effects on the OR for both industries. This finding is confirmed in the pooled analysis across both samples. The industry-specific estimates indicate that larger format sizes for the envelope, teasers employing the questioning technique and a promotional design on the backside of the envelope show positive main effects in the NPO industry. However, only the positive effect of a teaser with a questioning technique is confirmed in the pooled analysis. Interestingly, special and larger envelope sizes positively influence the OR in the NPO industry, while exerting a negative, weakly significant effect in the FSP industry. In the FSP industry, a larger weight positively influences the OR while the presence of a teaser reveals a negative main effect. These effects are confirmed in the pooled analysis. Overall, most of the significant visual design variables in the industry-specific analyses are also significant in the pooled analysis.

With respect to the KR, for the NPO industry, only the pre-stamped envelope as a response device yields a positive influence. In the FSP industry we do, however, find 3 significant main effects. The length of the headline is positively related to the KR. The presence of a post

scriptum negatively influences the KR. However, when this post scriptum provides some new information, it positively influences the KR. In the pooled model, the latter variable is the only significant visual design characteristic with a positive influence on the KR.

6.2.2. Sender identity

Concerning the OR, we do not find any significant effect for this type of design characteristic in the NPO industry. In the FSP industry, placing the sender's name on the front side has a negative main effect. In the pooled analysis, this effect remains negative and significant.

For the KR, our estimation results in both industries show positive effects for placing the company logo and the fax number in the letterhead. The effect of the logo is confirmed in the pooled model; however, the fax number is only marginally significant. Remarkably, the presence of a phone number for the sender in the letterhead negatively influences the KR in the NPO industry. One reason could be that the recipients expect a toll-free number.

6.2.3. Personalization category

At the OR stage, envelope personalization is captured by the type of postage placement. Using the least personalized option, i.e., the imprint "postage paid," leads to significantly lower overall ORs in the FSP industry. This negative main effect is also found in the pooled analysis.

With respect to the KR, the personalization of the supplement exerts a positive main effect in both industries. Although a personalized supplement is significantly positive in the pooled model and for the NPO industry, it is only marginally significant in the FSP industry.

6.2.4. Information intensity category

No significant variables capturing the information intensity of the mailing are found in the OR equations across industries. This result is hardly surprising because the envelope usually does not contain substantially varying degrees of information.

The aspects that reflect the information intensity of the direct mail package are captured for the KR. Here, the length of the cover letter exerts a positive influence in the NPO industry, while the length of the brochure has a positive main effect in the FSP industry. In the pooled model, only the positive effect of the letter length is confirmed.

Table 4
Empirical results on keeping rates.

Variables	NPO			FSP			Weighted pooled analysis		
	Parameter	Estimate (SE)	t-Value	Parameter	Estimate (SE)	t-Value	Parameter	Estimate (SE)	t-Value
Constant	$\gamma_{1,0}$	-5.894 (.729)	8.09***	$\gamma_{2,0}$	-6.777 (.583)	-11.62***	$\gamma_{3,0}$	-6.654 (.470)	-14.14***
Visual design:									
L: Length of headline				$\gamma_{2,2}$	.064 (.025)	2.57**	$\gamma_{3,2}$	.015 (.016)	.91
L: Presence of post scriptum				$\gamma_{2,3}$	-.870 (.351)	-2.48**	$\gamma_{3,3}$	-.330 (.221)	-1.50
L: Post scriptum: new aspect/info				$\gamma_{2,5}$	1.377 (.318)	4.33***	$\gamma_{3,5}$	.569 (.226)	2.52***
L: Typography: letters with serifs				$\gamma_{2,7}$	.508 (.357)	1.42			
L: Accentuations: underlines				$\gamma_{2,9}$	.838 (.621)	1.35			
L: Accentuations: capital letters				$\gamma_{2,10}$	.584 (.524)	1.11			
L: Color of paper	$\gamma_{1,11}$	1.083 (.840)	1.29						
RD: Pre-stamped envelope	$\gamma_{1,39}$	1.227 (.554)	2.22**				$\gamma_{3,39}$	-.277 (.262)	-1.06
RD: Color proportion: up to 25% colored	$\gamma_{1,43}$	.363 (.442)	.819	$\gamma_{2,43}$	-.617 (.488)	-1.26			
RD: Color proportion: 26-50% colored	$\gamma_{1,44}$	-.661 (.505)	-1.31	$\gamma_{2,44}$	-.324 (.412)	-.78			
RD: Color proportion: 51-75% colored				$\gamma_{2,45}$	-.163 (.576)	-.28			
RD: Color proportion: 76-100% colored	$\gamma_{1,46}$	.468 (.341)	1.38	$\gamma_{2,46}$	-1.413 (.1060)	-1.33			
Sender identity:									
L: Content of letter head: logo	$\gamma_{1,15}$	1.228 (.315)	3.90***	$\gamma_{2,15}$	1.399 (.466)	3.00***	$\gamma_{3,15}$	1.618 (.361)	4.48***
L: Content of letter head: phone number	$\gamma_{1,17}$	-1.010 (.395)	-2.56**				$\gamma_{3,17}$	.337 (.204)	1.65
L: Content of letter head: fax number	$\gamma_{1,18}$	1.506 (.396)	3.80***	$\gamma_{2,18}$	1.094 (.443)	2.47**	$\gamma_{3,18}$	.445 (.229)	1.94
L: Content of letter head: photo of sender	$\gamma_{1,20}$	-.507 (.267)	-1.90						
L: Content of letter head: toll-free phone number				$\gamma_{2,22}$	-1.119 (.855)	-1.31			
L: Presence of testimonial	$\gamma_{1,23}$	-.440 (.491)	-.90						
Personalization:									
L: Presence of sender's signature	$\gamma_{1,26}$	.398 (.521)	.77						
S: Personalization	$\gamma_{1,35}$	2.963 (.302)	9.80***	$\gamma_{2,35}$	.843 (.440)	1.90	$\gamma_{3,35}$	1.811 (.309)	5.87***
RD: Response channel option: fax	$\gamma_{1,48}$	-.890 (.461)	-1.93						
RD: Response channel option: toll-free phone number	$\gamma_{1,50}$	1.058 (.597)	1.77						
Information intensity:									
L: Length of letter (> 1 page)	$\gamma_{1,27}$	.635 (.242)	2.62***	$\gamma_{2,27}$	.521 (.489)	1.05	$\gamma_{3,27}$	.578 (.228)	2.54***
S: Length of brochure	$\gamma_{1,36}$	-.012 (.014)	-.81	$\gamma_{2,36}$	.075 (.022)	3.44***	$\gamma_{3,36}$	.008 (.014)	.54
Industry-specific variables (NOI:)									
L: Type of testimonials: doctor	$\gamma_{1,61}$	.475 (.561)	.85						
L: Type of testimonials: helper	$\gamma_{1,63}$	2.430 (1.029)	2.36**						
INC: Kind of give-away: calendar	$\gamma_{1,69}$	.511 (.516)	.99						
INC: Kind of give-away: others	$\gamma_{1,70}$	.609 (.360)	1.69						
INC: Value appearance of give-away: high	$\gamma_{1,72}$	-1.222 (.544)	-2.25**						
OFF: Charitable category: environment/animals	$\gamma_{1,75}$	-.553 (.324)	-1.71						
OFF: Charitable category: religion/church	$\gamma_{1,77}$	-1.942 (.327)	-5.94***						
OFF: Goal/intention of charitable mail: one-time donation	$\gamma_{1,78}$	.520 (.471)	1.11						
OFF: Goal/intention of charitable mail: recruiting new members	$\gamma_{1,81}$	-1.363 (.372)	-3.66***						
Industry-specific variables (FSP):									
L: Offer details				$\gamma_{2,60}$	.979 (.418)	2.34**			
L: Restrictive terms and conditions				$\gamma_{2,61}$	-.731 (.354)	-2.07**			
RD: Response options: fill out application form				$\gamma_{2,66}$	-1.139 (.392)	-2.90***			
RD: Response options: request additional information				$\gamma_{2,68}$	1.764 (.484)	3.65***			
RD: Information required from recipient: mailing address				$\gamma_{2,76}$	.929 (.752)	1.24			
Common controls:									
Campaign volume (linear)	$\gamma_{1,53}$	1.765 (.241)	7.32***				$\gamma_{3,53}$	.644 (.199)	3.24***
Campaign volume (squared)	$\gamma_{1,54}$	-.404 (.086)	-4.70***				$\gamma_{3,54}$	-.103 (.054)	-1.89
Firm volume (linear)	$\gamma_{1,55}$	.424 (.196)	2.17**				$\gamma_{3,55}$	.395 (.167)	2.36**
Firm volume (squared)	$\gamma_{1,56}$	-.893 (.184)	-4.84***				$\gamma_{3,56}$	-.271 (.121)	-2.25**
"End of month"-effect	$\gamma_{1,57}$	.031 (.014)	2.12**				$\gamma_{3,57}$	.025 (.014)	1.86
Industry dummy							$\gamma_{3,59}$	.355 (.132)	2.69***
Adj. R ²		.340			.164			.173	
F-statistic (probability)		7.792***			3.619***			8.607***	

a. OLS-Model estimated with White's (1980) correction for heteroscedasticity (robust standard errors).

*** sign. at $p < .01$.

** sign. at $p < .05$.

6.2.5. Observational learning

Across all design categories, we identify those design characteristics that allow the recipient to learn about the expected content of the direct mail piece. Because these types of characteristics potentially generate curiosity, they might positively influence the OR. In

Table 2, all of these design characteristics are identified in the respective column. Across both industries, we find that the larger formats in the NPO industry and a higher weight in the FSP industry raise the OR in these industries. In the pooled sample, only a higher weight is confirmed as driving the OR.

6.2.6. Industry-specific design characteristics

We do not capture industry-specific design characteristics for the OR stage. For the KR in the NPO industry, depicting a helper as a testimonial enhances the KR. In contrast, the campaigns with a high-value appearance for the giveaway, campaigns from religious institutions, or campaigns with the primary objective of recruiting new members lead to lower KRs. For the FSPs, we find that presenting offer details in the letter or offering the response option to request additional information exerts a positive effect on the KR. Displaying restrictive terms and conditions or asking the recipient to fill out an application form leads to significantly lower KRs. This latter finding parallels with the new membership request in the NPO industry, suggesting that any initial direct mail solicitations in both industries should not be intrusive.

6.2.7. Common controls

At the OR stage of the direct mail funnel, the results show that the ORs drop with increasing campaign mailing volumes in the NPO industry only. This drop, however, becomes smaller as the campaign volume increases because we find a positive significant quadratic term for the campaign volume (U-shaped relationship). In the FSP industry, no significant effects for the campaign volume are found. The firm volume appears to be positively related to the OR in the NPO industry, while its main effect is negative in the FSP industry. The positive quadratic coefficient for the firm volume in the FSP industry suggests that this negative effect becomes smaller as the firm volume increases (U-shape). Overall, our results suggest that there is mixed evidence between the 2 industries on the role of the campaign and the firm volume on the OR. As none of the effects can be found in the pooled sample, it appears that these effects are rather industry-specific.

At the KR stage of the direct mail funnel, we detect a curvilinear, inverted U-shape relationship between the campaign volume and the KR and between the firm volume and the KR in the NPO industry, given that the parameter estimate for the linear (quadratic) term is significant and positive (negative). These effects are absent in the FSP industry. However, both effects are also found in the pooled model, but the quadratic effect for the campaign volume is only weakly significant here. We also observe a positive end-of-month effect in the NPO industry, suggesting that there are higher KRs when the mailings are sent at the end of the month. This positive effect can be detected only marginally in the pooled model. The industry dummy is only significant in the pooled analysis for the KR, indicating that there are higher overall KRs in the NPO industry.

7. Discussion

7.1. Insights into the direct mail funnel

The unique data set utilized in this study reveals that the previously unobservable “black box” of the intermediate stages of the direct mail funnel appears to contain valuable diagnostic information for marketers. This finding compares to the systematic use of intermediate communication measures for other media (such as awareness, recall, or recognition).

7.1.1. Industry differences in opening and keeping rates

Overall, the ORs are statistically similar in both industries, but non-profit organizations manage to attain higher overall KRs (indicated by a significant positive industry dummy, see Table 4). By habit or out of curiosity, consumers are generally inclined to open direct mail envelopes. In addition, when receiving a mailing from an FSP, many recipients are likely to open the envelope to make sure that no potentially important information is being missed, e.g., to confirm that they are not mistakenly discarding personal balance information. Additionally, the negative effect of a colored envelope design is somewhat more negative in the NPO industry and, at the same time, more widely used (75% vs. 35%, as observed in Table 2). Both effects combined might explain

the marginally higher ORs in the FSP campaigns. Conversely, one conceivable explanation for the higher KRs in the NPO campaigns is that charitable solicitations, by their very nature, usually have a broader appeal (e.g., helping people) than financial offerings. The latter is typically more specific in nature (e.g., signing up for another credit card). Moreover, compared to other product categories, the recipients of non-profit mailings often exhibit a higher level of involvement with the charitable solicitation because of the emotional importance attached to helping behavior (e.g., Francis & Holland, 1999).

7.1.2. Disconnect between the opening and the keeping rate

Another noteworthy finding is the lack of a significant relationship between the ORs and the KRs, i.e., from opening the direct mail to keeping it. This finding suggests that there are no significant spill-over effects in the direct mail funnel at the aggregate campaign level, at least within our sample representing 2 major direct mail industries. In other words, opening a direct mail piece is obviously a necessary condition for responding to the offer, but it is not per se a driver of direct mail keeping and, accordingly, the subsequent response. As a consequence, both stages in the response process should be optimized independently.

It appears that curiosity in the initial contact stage induces consumers to look inside the envelope, but afterwards, benefit motives prevail. In some cases, the outside envelope might even have been misleading, resulting in dissonant feelings on the part of the recipient. Discarding the direct mail piece might then be used as a dissonance-reducing strategy (Festinger, 1957).

7.2. Impact of design characteristics on the opening and keeping rates

7.2.1. Overall impact of design characteristics

The direct mail design characteristics determine the campaign effectiveness to a substantial degree: for the NPOs (FSPs), they explain 13.7% (24.4%) of the total variance of the ORs and 21.5% (16.4%) of the KRs (i.e., when controls are dropped from the equation). Hence, our study furnishes the first empirical support for the claim offered in direct marketing textbooks suggesting that 10 to 25% of direct mail campaign success can be attributed to creative execution (e.g., Roberts & Berger, 1999, p. 7; Stone & Jacobs, 2008, p. 6).

7.2.2. Impact of specific mailing design categories

Our results indicate that the different categories of direct mail characteristics are of differential importance in explaining the ORs and the KRs. Whereas the visual design elements on the outer envelope appear to be the predominant drivers of the ORs, the other categories of design characteristics become comparatively more important for explaining the KRs. Notably, for the OR, the effects of several visual design characteristics differ between the 2 industries. This finding underlines the claims in the literature that the effectiveness of direct mail design is to a considerable extent industry-specific (e.g., Stone & Jacobs, 2008). Additionally, whereas 3 visual design variables exert a significant influence on the KRs in the FSP industry, only the pre-stamped response device drives the KR in the NPO industry.

Considering the effects of all visual design characteristics on the OR in concert, it appears that the FSPs are well advised to use plain envelopes resembling official business mail and to avoid design elements that signal the promotional quality of the mail (e.g., extraordinary formats, teasers, and colorful design). For the NPO mailings, a more nuanced picture emerges: while colorful envelope design should be avoided in most cases, some design features such as special envelope formats, teasers with questioning techniques or promotional designs on the back side can help to enhance the opening behavior.

With respect to the sender identity-related variables, our findings are somewhat ambivalent. The ORs can be increased by withholding the sender's name on the envelope. This tactic of creating curiosity is particularly effective in the FSP campaigns, but generates no

significant effect in the NPO campaigns. For the letter, however, our results unanimously show that placing the company's logo in the letterhead can significantly enhance the KR in both industries. This finding underscores the value of brand elements in marketing communications (e.g., Keller, 2007; Pieters & Wedel, 2004).

Our results regarding personalization are somewhat mixed. On the outer envelope, a personalization impression can be conveyed through the type of postage payment employed. In the FSP industry, the direct mail envelope should not appear to the recipient to be bulk mail. This impression could be caused by using a "postage paid" imprint instead of ink or real stamps, resulting in reduced ORs for the campaigns. Additionally, among the various personalization options for the other components of the mailing, only supplement personalization significantly and consistently enhances the KR in both industries studied. Because all mailings in our data set are personally addressed by default, the vast majority of them also exhibit the standard personalization features such as a personal salutory address, the current calendar date, the sender's signature and a response device with the addressee's name, etc. As a consequence, these personalization features are rather static and, thus, cannot exert differential effects across campaigns. By contrast, the personalization of the supplement is only used by relatively few companies in our sample and can thus serve as a differentiating factor. Hence, the personalization of specific elements can be an effective tactic compared to using standardized mailings. In sum, our results show that personalization is primarily a driver of the KR, thereby confirming the literature on survey response rates, which states that personalization is important (e.g., Dillman, 2007).

Interestingly, we find that 2 information intensity variables are positively related to the KR. These variables are, however, different for the 2 industries. While the letter length positively influences the KR in the NPO industry, the length of the brochure positively influences the KR in the FSP industry. The finding of these 2 positive effects is noteworthy because it contrasts with the widely accepted notion of information overload in advertising and consumer behavior (e.g., Hoyer & MacInnis, 2007). While this view has intuitive appeal, it should be noted that direct mail advertising usually receives deliberate and active attention by consumers once the envelope has been opened. In addition, not all information must be processed at the moment of opening the direct mail piece. If there is a brochure or a long letter in the envelope, it could well be that people keep the mail piece to read all of the information when they have the time. As a result, information overload due to the limited capacity of short-term memory is of less concern than it is in the case in real-time media such as TV or online advertising.

With respect to our controls, the effects of the campaign- and sender-level mailing volumes differ across industries and funnel stages. Again, this difference underlines the diagnostic value of analyzing the intermediate stages of the direct mail funnel. For the NPO campaigns, we find a positive relationship between the firm volume and the OR. In other words, the direct mail from large and well-known non-profit organizations has a higher likelihood of being opened. We also find a U-shaped relationship between the campaign volume and the ORs; up to some point, the ORs tend to drop with the increasing campaign volumes, suggesting that there are wastage effects due to less selective targeting. For very large campaigns, however, the ORs tend to increase again. This result could be because large campaigns are typically accompanied by cross-media support (e.g., web, TV, and radio advertising), and could thus benefit from heightened awareness. For the KR of NPO campaigns, we find a pronounced inverted U-shape relationship with both campaign volume and firm volume. On the one hand, the KR starts to drop beyond some optimal volume—most likely also due to a less targeted address selection. As large-volume campaigns inevitably address the less responsive consumer segments, the wastage effects drive down the KR. On the other hand, it appears that charitable campaigns must reach some reasonable size and come from bigger organizations to be perceived by the recipient as

trustworthy and relevant. Up to some point, at which the wastage effects start to dominate, it appears that trust and the positive image created through the brand name of a large and well-known non-profit organization enhance the effectiveness of charitable solicitations (Bendapudi, Singh, & Bendapudi, 1996). With regard to the timing of campaigns, we detect a significant "end of month" effect for the KR in the NPO sample, in that the direct mail pieces are more likely to be kept by the panel participants if the mail is received closer to the end of the month. Accordingly, if researchers and practitioners analyze this type of panel data, they need to control for this effect.

Compared to the NPO campaigns, the control variable effects for the FSPs appear to be less pronounced. We do not find any significant volume or timing effects on the KR. In contrast to NPOs, we do not detect the positive linear effect of firm volume on the OR but find a U-shaped effect. It appears that the small and large FSPs (in terms of mailing volume) are better able than the medium-sized FSPs to entice consumers to examine their offers. For the large FSPs, the positive familiarity effect of well-known institutions is likely to play out. Small financial service providers, on the other hand, could be targeting very well well-defined segments with direct mail pieces that signal exclusive offerings (e.g., regional players or private banks).

8. Implications

We show how researchers and firms can systematically investigate the effect of design characteristics on direct mail performance. Researchers can use the previously unavailable panel data on the intermediate stages of the direct mail funnel to better investigate heterogeneous effects across the funnel. The panel data also allow them to compare differences at the intermediate communication stages. Managers can leverage the commercially available direct mail panel data to augment their managerial tool set by covering a previous blind spot, namely the active management of design for direct mailings. Our approach in combination with the panel data offers them an opportunity to further improve the design of mailing characteristics as an important means to increase the OR and the KR as drivers of response rates.

Moreover, our study findings offer some specific guidelines for the marketing managers who are responsible for running direct mail campaigns. Researchers and managers are likely to gain new insights, as several of our design recommendations are in marked contrast with the current methods used to design the majority of direct mailings by companies. Even some non-significant or negative findings might be worth noting: for example, as shown in Table 2, 43% of all campaigns from NPOs (172 out of 396) contain some type of give-away to potential donors. However, the presence of giveaways does not appear to enhance the response process. To the contrary, our results suggest that the giveaways with a high-value appearance even lead to lower KR, thus casting doubt on the benefits from the costly inclusion of giveaways. Likewise, over two thirds of direct mail letters from FSPs (198 out of 281) contain some type of postscript, as this is commonly assumed to be an effective technique. Our results challenge this common practice and paint a more nuanced picture: on average, the use of postscripts is associated with lower KR in the FSP industry unless some new aspect or information regarding the offer is presented (see Table 4). Other features such as attaching payment devices to cover letters or the depiction of awards (e.g., "rated as best investment fund") have been proposed to stimulate the response process but fail to exert significant effects in our study. As these and some other examples given below reveal, several of our findings are rather unexpected.

Our guidelines for managers can be summarized in some "direct mail design recommendations" to increase the intermediate performance of direct mail campaigns. Based on our study, the generalizable suggestions across campaigns and industries include the following.

- Use color with caution. This recommendation is based on our finding that a colorful envelope design reduces the ORs across both

industries. As shown in Table 2, colored envelopes are actually employed in the majority of campaigns (i.e., in 395 out of 677 campaigns), but our results indicate that this prevailing practice might actually be counterproductive.

- Use your sender identity with care. Our results indicate that eliminating your name from the envelope can facilitate the ORs, particularly in FSP campaigns. For the letter, by contrast, the findings unanimously show that the KR is higher if the letterhead contains a company logo. Hence, the direct marketers should capitalize on the positive brand communication effects in the letter to signal familiarity and gain trust. To establish this type of qualified contact, however, it might actually be beneficial to create curiosity by not identifying the sender of the promotional message up front on the envelope. Analogous to a personal selling situation, this recommendation is similar to getting a “foot in the door” as a necessary condition for presenting the offer.
- Provide sufficient information. In both industries, we find some evidence that providing more information increases the KR. NPOs should use long rather than short letters to convey enough information. Providing information is important for non-profit organizations because the prospective donors must first believe the charity's message depicting need (Bendapudi et al., 1996). Longer texts could be helpful to present a variety of details on the non-profit organization itself as well as regarding the cause of the need and the objective of the corresponding donation. Similarly, offering comprehensive and detailed information is of paramount importance for financial service providers to reduce the risk perceptions on the part of their prospective customers (e.g., Gemuenden, 1985). The FSPs should provide offer details in the cover letter, use comprehensive brochures to convey additional information, and provide a “request information” response option to accommodate the further information demands of the direct mail recipients.
- Use personalization as a differentiating factor. Most organizations that send out personally addressed direct mailings employ certain personalization techniques by default (e.g., personal salutary address). These personalization features have become commonplace and, thus, can hardly continue to serve as distinguishing design factors. However, personalization of the additional parts of the mailing such as supplements is still not commonly employed; as shown in Table 2, only 64 out of 479 campaigns containing a supplement are personalized to the recipient. Under these circumstances, personalization can serve as an effective differentiator.
- Take little steps when approaching prospects. Another interesting parallel is that neither the NPO nor the FSP campaigns should be too intrusive. In prospecting, charitable direct mail solicitations should aim at one-time donations rather than formal and enduring new memberships (see Table 4). Similarly, the FSPs should be cautious about immediately requesting that the prospective customer sign a contract in the direct mail solicitations. Likewise, mentioning restrictive terms and conditions up front in the letter should be avoided. The focus of financial mailings should rather be on initiating a promising customer acquisition process by providing sufficient information in the letter and supplement and by offering a request for further information as a response option in case the prospect is interested (see Table 4). As shown in Table 2, common industry practice is not consistent with this finding: out of 225 FSP campaigns containing a response device, 87 campaigns aim to have an application form filled out right away, whereas only 31 campaigns offer a request for additional information as a response option. Our general recommendation, however, is that the solicitations that aim at substantial immediate commitments by prospects should only be considered if the final payoff of the completed applications or memberships overcompensates for the lower KR.

9. Future research

The data-driven constraints in our study indicate areas for future research. First, our study is the first to investigate direct mail characteristics

in Germany. While Germany is one of the largest economies in the world, it has to be taken into account that the households in Europe receive a much smaller number of direct mail solicitations than those in the United States (Hesse, Krafft, & Peters, 2007). One could argue that consumers' preferences and attitudes towards direct mail advertising vary between countries. Accordingly, the effects of specific mailing characteristics on the various measures such as opening, keeping, and response rates can differ. Hence, there is a need for an international study that covers multiple countries, preferably from different continents including the Americas and Asia. Second, the actual response rates were not available to us. While we argue that the ORs and the KR of the campaigns as intermediate measures reflect the effectiveness of envelope and direct mail design characteristics more accurately, the inclusion of actual response rates would have been desirable to put our results into perspective. Third, while our study comprises a wide range of design variables, it is possible that there are additional design features that also influence campaign performance. Similarly, different operationalizations of our variables could produce different results. For example, letter length was measured by a dummy variable indicating whether the letter is longer than 1 page. We demonstrate positive effects of letter length on the KR. More fine-grained measures such as the number of lines or words would have permitted us to test for nonlinearities such as inverted U-shape effects. Fourth, individual-level data are not available to us because GfK only provided us with aggregate data at the campaign level. A disaggregate analysis could provide deeper insights into the effectiveness of mailing characteristics across individuals. Customer characteristics as well as unobservable factors, such as attitudes or preferences, can be included in this type of estimation framework and could result in an even better understanding of consumer behavior in the context of direct mail advertising.

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Appendix A. Supplementary data

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