

# The impact of cigarette pack shape, size and opening: evidence from tobacco company documents

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## ABSTRACT

**Aims** To use tobacco industry documents on cigarette pack shape, size and openings to identify industry findings on associations with brand imagery, product attributes, consumer perceptions and behaviour. **Methods** Internal tobacco industry research and marketing documents obtained through court disclosure contained in the Legacy Tobacco Documents Library were searched using keywords related to pack shapes, sizes and opening methods. The search identified 66 documents related to consumer research and marketing plans on pack shape, size and openings, drawn from 1973 to 2002. **Results** Industry research consistently found that packs that deviated from the traditional flip-top box projected impressions of 'modern', 'elegant' and 'unique' brand imagery. Alternative pack shape and openings were identified as an effective means to communicate product attributes, particularly with regard to premium quality and smooth taste. Consumer studies consistently found that pack shape, size and opening style influenced perceptions of reduced product harm, and were often used to communicate a 'lighter' product. Slim, rounded, oval and booklet packs were found to be particularly appealing among young adults, and several studies demonstrated increased purchase interest for tobacco products presented in novel packaging shape or opening. Evidence from consumer tracking reports and company presentations indicate that pack innovations in shape or opening method increased market share of brands. **Conclusions** Consumer research by the tobacco industry between 1973 and 2002 found that variations in packaging shape, size and opening method could influence brand appeal and risk perceptions and increase cigarette sales.

**Keywords** Marketing, packaging, tobacco, tobacco industry.

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## INTRODUCTION

Tobacco use causes approximately 6 million deaths each year, and is the leading global cause of preventable death [1]. In 2010, global smoking prevalence among adults was estimated at 24% [2]. More than 175 countries have ratified the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), which commits signatory countries to implement a number of evidence-based tobacco control policies [3,4]. Article 11 of the FCTC establishes guidelines on tobacco packaging, an increasingly important form of marketing due to restrictions and bans on most advertising, promotion and sponsorship. Article 11 recommends that countries standardize the appearance of tobacco packaging, widely referred to as 'plain packaging', which may include restrictions on pack shape and size [5].

In December 2012, Australia became the first country to implement plain packaging regulations [6]. The regulations require the removal of brand imagery, trademarks and logos from packaging, and mandates that all packs feature the same olive-brown colouring [6]. The regulations also restrict the size and shape of packages: pack surfaces must be rectangular, all edges must be straight (not beveled or rounded), and only a flip-top opening can be used [6]. In addition, minimum pack dimensions effectively prohibit narrow packaging associated with 'slim' cigarettes.

Previous research on the impact of tobacco packaging has focused largely on brand imagery and design, which has been shown to influence brand appeal and create misleading impressions about its product's associated health effects. Compared to plain packs, consumers consider branded packs more attractive, attention-grabbing



**Figure 1** Examples of alternative pack size, shape and opening

and appealing to youth [7–9]. It is also well established that the use of brand descriptors such as 'light/mild', 'smooth', 'silver' and 'gold' are perceived as having a lower health risk than packages without such descriptors [7,8,10,11]. Similarly, branding that incorporates lighter packaging colours convey perceptions of reduced harm [7,8,12]. There is less evidence regarding the potential impact of structural aspects of packaging on consumers.

To date, only four studies independent of the tobacco industry have investigated the impact of pack shape and openings among consumers [13–16]. Qualitative research conducted in the United Kingdom indicated that youth and female respondents associated slim and perfume-shaped packs with lower health risk [13,16]. In the absence of branding, variations to the standard flip-top pack increased attractiveness and perceived product quality among youth and young adults in the United Kingdom and Australia [14–16]. Specifically, 'plain' packages that were beveled, rounded, slim, perfume-shaped or used a slide opening were most appealing to youth and young adults [14–16].

In recent years, a number of new package innovations have been introduced to the market, some of which encompass changes to the pack shape and opening method [17]. For example, between 2008 and 2011, modifications to Silk Cut packs in the United Kingdom included perfume- and beveled-pack launches [18]. Examples of alternative pack structures are shown in Fig. 1. Given that cigarette packaging has been shown to play a critical role in influencing brand appeal and perceptions of risk, there is a need to investigate the potential impact of new package innovations that are emerging.

Tobacco company documents provide a valuable source of evidence on industry practices. Internal

research and marketing documents have been made public through court disclosure. Previous searches of tobacco industry documents have shown how the cigarette package functions as an important marketing tool to communicate brand imagery and product attributes to consumers [19]. Tobacco industry documents contain a large amount of consumer research on various packaging constructions. The current study sought to examine, through tobacco industry documents, the role that physical elements of packaging pertaining to shape, size and opening method have in communicating brand imagery, product attributes and on influencing cigarette sales among consumers.

## METHODS

Tobacco industry documents pertaining to cigarette packaging shape, size and openings were searched during May 2012 using the University of California San Francisco Legacy Tobacco Documents Library (LTDL), <http://legacy.library.ucsf.edu>. LTDL contains approximately 13 800 000 internal tobacco industry documents made publically available as a result of litigation in the United States. The database contains documents from seven tobacco companies and two industry organizations, American Tobacco, Brown & Williamson, Lorillard, Philip Morris, RJ Reynolds, British American Tobacco, Liggett & Myers, Council for Tobacco Research and the Tobacco Institute.

The choice of search terms was informed by existing packaging in different markets and the tobacco literature. A total of 23 primary search terms were used. Ten search terms related to packaging shape (accordion, booklet, 'five sided', octagonal, oval, zip, 'angle edge', beveled,

'rounded corner', 'rounded edge'); six related to package size (compact, lipstick, perfume, princess, purse, slim); four related to package openings ('clam shell', 'slide opening', 'slide flip', 'slide shell'); and three were generic terms ('pack shape', 'pack structure', 'pack size'). When a primary search term returned more than 250 documents, secondary searches were performed by linking the primary search term with the descriptors: pack, shape, size, structure, opening, 'pack shape', 'pack size' and 'pack structure'. All search queries that returned fewer than 250 documents were reviewed by the primary author. The search strategy produced 23 primary searches, of which six searches returned fewer than 250 documents; 100 secondary searches, of which 70 searches returned fewer than 250 documents; and 19 secondary searches which returned 0 documents. Following the search criteria, 26% of documents identified through primary search queries and 86% of documents identified in secondary search queries were reviewed in their entirety.

A total of 3752 documents were scanned initially, of which 308 were judged to be relevant. Documents were required to be grounded in research conducted with consumers or reflect corporate opinion on product or brand development related to pack structure, such as references from company executive meeting notes. After removing duplicates and documents not related to research or marketing on pack shape, size or openings, 66 documents remained, dating from 1973 to 2002. The current analysis is based on 16 quantitative studies [20–35], 20 qualitative studies [36–55], eight letters that summarized results of qualitative research [56–63], one letter that summarized results from a quantitative study [64], four internal company correspondence letters [65–68] and 17 documents referring to company marketing and brand plans [69–85]. Documents were categorized according to the following themes: brand imagery, product quality, product strength, product taste, pack appeal, desire to try and actual trial.

## RESULTS

The tobacco industry directed research towards understanding the image and product attributes communicated by different pack structures, such as the impact on brand imagery and impressions of product quality, strength and taste. The industry also investigated consumer appeal and purchase interest for various pack sizes, shapes and opening styles. Finally, some documents reported the actual trial, indicated by market share, for brands that were launched in a new pack structure.

## Impressions of positive brand imagery

Research conducted by tobacco companies consistently found that cigarette packages that deviated from a traditional flip-top box were associated with positive image attributes. Octagonal, rounded and beveled packs were consistently perceived as stylish, elegant and classy [32,33,42,47,50,54]. For example, in qualitative research, rounded or beveled packs for a King-Size Benson & Hedges pack cued impressions of 'elegance' and 'class' [50,54].

Consumer studies consistently found that innovations in pack shape and openings overwhelmingly evoked 'contemporary' and 'modern' imagery [20,26,33,34,42,43,45,47,81,82]. As illustrated in a quantitative study conducted by Philip Morris across 15 cities in the United States: 'the new rounded corner pack with ribbon graphics design provides a unique, "fresh, revitalized look" that modernizes the [Merit] brand and makes the imagery more relevant to smokers' [33]. A sales and marketing report for British American Tobacco demonstrated that contemporary imagery cued by pack innovations have the potential to transfer onto the entire brand family: 'The pack is a key strength for Dunhill Special Reserve. Consumers gravitate towards the clean, graphic design and the innovative beveled edges. It seems to lend an aura of youthfulness and modernity to the entire Dunhill franchise' [81].

Consumers were also more likely to describe packages with a slide opening [28,62], beveled [50], octagonal [53,82] or five-sided [45] as innovative and unique. Uniqueness imagery prompted by the pack transferred to impressions about the brand. For example, results from a pre-post market test showed that, compared to impressions held within the control market, Vantage Ultima was perceived as unique and different within test markets that launched a new convertible slide/flip opening [28].

One company's decision to introduce a new pack opening was influenced partly by the extent to which the pack innovation would enhance brand imagery [26]. During 1991, RJ Reynolds conducted a market study across 20 cities in the United States to determine which of its established brands (Winston, Salem, Camel or Vantage) had an image consistent with imagery projected by the slide box [26]. Respondents pictured slide-box users as young, contemporary females who were light smokers. As a result, RJ Reynolds concluded that 'the use of slide-box might be warranted for Vantage and, to a lesser extent, for Salem products targeted to black smokers. For other established brands [Camel and Winston], the slide-box does not appear to offer sufficient benefits over the flip top box pack in terms of appeal or more desirable brand imagery to warrant further consideration' [26]. Apparently, Winston and Camel users were

viewed as old-fashioned, male and heavy smokers, a brand image which was not consistent with slide-opening imagery [26].

### Perceptions of added value and premium quality

Consumer research and tobacco company marketing documents consistently found that pack shape dictated perceptions of added value and product quality. Research documents from Philip Morris and RJ Reynolds suggested that a high-quality product can be conveyed by changing a flip-top box to a slide-opening [30], octagonal shape [32] or by making the corners beveled [37] or rounded [33,54,74]. Furthermore, during a marketing conference attended by R.J.R. Macdonald executives in 1992, pack size was described as a means to add value to cigarettes as they become more expensive: 'one way to combat price hikes is to add value. Opportunities suggested include . . . higher perceived value packaging' [76].

The potential impact of pack innovation on brand positioning was considered carefully by the industry. In several cases, imagery projected by the pack structure was expected to lift the brand image towards premium, as illustrated by the 1993 re-launch of the Parliament brand in Japan, which aimed partly 'to add value to the King Size Lights variant by repackaging it in a deluxe rounded-edge box and giving [King Size] Lights a more premium image at the import mainstream price of 250 yen' [84]. However, pack innovation that was anticipated to completely alter brand positioning was regarded less favourably, as was the concern with a potential octagonal pack for Benson & Hedges: 'While this packaging is quite attractive and could fit with the brand's historic positioning, it is the concern of the Brand group that the octagonal shape . . . will position the Brand too strongly within the luxury pack segment' [65].

### Perceptions of product strength

Industry documents indicate that pack shape has been used to influence health-related perceptions of product 'lightness' and reduced tar. As described during a Philip Morris marketing conference in 1989, the 'rounded corner box for Multifilter in Italy [is used] to reinforce the brands lightness and modernity' [71].

Packs with slim configurations, such as Virginia Slims and Capri, were more likely to be described by consumers as mild rather than strong, and low tar as opposed to high tar [22,25]. For Virginia Slims, quantitative research with smokers showed that lightness impressions were enhanced further by changing the pack shape to rounded corners [31]. Qualitative research conducted with women concluded that pack size and branding together conveyed perceptions of a 'lighter' product [55]. Subse-

quently, Philip Morris in Japan recommended that 'the Feb 1994 re-launch of Parliament Lights king size [be] in a rounded edge pack with the new modified graphics to better communicate lightness, and [to] better differentiate the king size lights from parent king size' [21].

Results from two quantitative studies conducted across several markets in the United States showed that changes to the pack shape influenced lightness perceptions even when the branding was not changed. A Parliament octagonal box was shown to communicate a less harsh product in comparison to its standard box [32]; while the Salem brand introduction of an innovative slide opening was found to reduce strength perceptions compared to the flip-top version [34].

Only one qualitative study from Philip Morris contradicted these findings: in terms of 'lightness', males did not perceive a difference between the rounded edge and square pack for the Lark brand [49].

### Perceptions of product taste

Changes to pack structure were found in industry research to enhance taste-related perceptions. After a new slide opening for Salem was introduced to the market by RJ Reynolds, a post-market study reported that 'the slide box does seem to create expectations of smoother taste in the Green Label' [34]. Other pre-market research from Philip Morris reported that ratings for smooth taste were increased when rounded corners were added to the Virginia Slims and Merit box [31,33], as well as when an octagonal packing was tested for Parliament [32,43]. Similarly, menthol products were more likely to be viewed by consumers as 'containing the right amount of menthol' when it was presented in a rounded-corners versus square box [31].

### Packaging on impressions of appeal

#### *Pack size*

Packaging with the smallest dimensions were attractive to young adults, irrespective of whether the pack contained 100 mm, 120 mm, regular or shorter-length cigarettes [22,24,29,61]. Overwhelmingly, packs with slim and thin configurations were appealing to young women [22,24,25]. Slim packs were especially liked for being less bulky than regular packs [56], and for fitting easily into a hand or purse [46,57].

Assumptions about pack appeal on youth appeared to inform product development. For instance, during a product innovations meeting that was attended by executives from Philip Morris in 1986, a slims pack was proposed for a new brand that would be targeted to 15–17-year-old females [66].

*Rounded, octagonal or beveled edges*

According to Rothmans Benson & Hedges Strategic Business Plan 1997/1998, its King Size variant was to be re-launched in 1997 with expectations that the 'round edge pack will add youthfulness, leading edge savvy to brand [and] will attract entry level users' [81]. Research documents show that, among smokers, rounded corners were consistently preferred over a traditional box for the brands Virginia Slims [31,42], Merit [33], Parliament [21,43], Winston [51] and Benson & Hedges [73]. Further, consumer research demonstrated that rounded corners were particularly liked by females [33,51] and young adults aged 20–29 years [42,43].

In 2000, Philip Morris introduced a Parliament octagonal pack with an objective to 'build sales of Parliament among young adult smokers [and] generate excitement . . . with the test market of an octagonal packaging structure' [83]. Research on Parliament and Benson & Hedges indicated that octagonal or beveled-shaped packs appealed more to smokers than traditional rectangular packs [32,37,47,53,73]. The novel shape was described frequently by consumers as convenient [36,77] and aesthetically pleasing [32]. Similarly, female smokers preferred a five-sided box for Virginia Slims Ultra Lights compared to a four-sided version with the same branding [27]. Younger women were more likely than older women to find the five-sided shape appealing for Virginia Slims Ultra Lights [23].

*Opening method*

Six documents consisting of pre-market research conducted for RJ Reynolds and Philip Morris showed how smokers found a new slide opening for Parliament, Winston and Dakota more appealing than the current brand's flip-top pack [30,48,51,52,58,63]. The slide opening produced mixed reaction among smokers: generally, a slide-opening pack was perceived as 'attention-grabbing' [48] and as a convenient way to access cigarettes [51,52,58,63], while a minority of smokers did not perceive any functional benefit [20,34,52,63]. After a slide-box style was introduced for Salem in 1999, a post-market study conducted in the United States across 17 states showed that the slide box broadened appeal among competitive and franchise smokers within the test market [34].

One pre-market pack test from 1973 contradicted these findings in that, compared to a slide-opening for Viceroy 99, the flip-top version generated greater appeal among females [20].

*Unique innovations in pack shape*

Between 1990 and 1993, Philip Morris International marketing reports highlighted the oval pack as a means

to communicate in a marketing restrictive environment [75,80,85]. Qualitative packaging studies conducted by Philip Morris suggested that women were highly interested in oval packs, and especially liked how the shape felt in their hand [56,68,80]. Furthermore, several marketing reports from Philip Morris described an oval pack re-launch as intended for a young target market [70,72]. For example, in 1986, the Philip Morris Product Innovations Group for the European market identified an oval pack for the 'new generation—smokers under 25' [69].

Similarly, Philip Morris investigated a potential booklet pack for Virginia Slims with 'the objective to evaluate the appeal of these packaging concepts [booklet, oval, princess] for a new Virginia Slims king size among young adult female smokers' [67]. Qualitative research consistently showed that the booklet pack had significant appeal among women aged 20–24 years [39,42,79]. Booklet packs were described by women as attractive [39,60] and as a convenient means for carrying a small number of cigarettes [42,60,79]. Conversely, heavier smokers were less likely to perceive booklet packs as appealing or as a functional benefit [40,60].

All qualitative packaging studies conducted for Leo Burnett and Philip Morris showed that the princess pack, an elongated flip-top box containing two rows of 10 cigarettes, were overwhelmingly disliked by smokers [37,42,50,73]. Princess packs were most disliked for being too wide, inconvenient and unable to fit easily into a purse or shirt pocket [37,42,44,50,54,73]. Also, an accordion pack that featured individual compartments for each cigarette was universally disliked by smokers for being functionally impractical [41,56].

**The influence of pack structure on purchase intent**

Several documents indicated that variations on the traditional flip-top box increased purchase intent for cigarette products. For example, smokers reported more interest in purchasing Parliament when it was presented in octagonal packs [32,53,78]. Similarly, a new slide opening prompted purchase interest among smokers for Winston [30], Parliament [43], Salem [62] and Kamel Menthe [62]. Among young adult female smokers, novel packaging created intent to try Virginia Kings: 'few felt any reason or curiosity to try Virginia Kings until shown innovative packaging. Exposure to booklet or oval in either graphic design created desire to try' [38], and in subsequent qualitative research 'most said they would likely buy one pack of Virginia Slims Kings because of the appeal of the unique package structure [booklet] and its inherent benefits' [39]. The evidence on rounded corners was mixed. While rounded corners increased purchase interest for Merit [33], smokers claimed that the rounded edges on Benson & Hedges packs was not a determining factor in their purchase intent decision [54].

Three documents explored the relationship between pack shape and price on purchase intent. For smaller 10-cigarette packs that would be offered at a lower price than the full-sized version, the new size and reduced price together motivated purchase interest for a Marlboro 10's pack, which was viewed as convenient, unique and affordable by young adults [61]. Reaction to a Virginia Slims 10's pack was even more favourable: 'for most women, the pack itself took precedence over the lower price. . . . When the price was shown as exactly half [the price of the full size pack], interest pivoted on the appeal of the pack size rather than any perceptions of a deal' [59]. However, in a conjoint study testing Kent packs that contained the same number of cigarettes, purchase intent was rated the same for a beveled and traditional non-beveled pack offered at the same price [35].

### The influence of pack design on actual trial

Evidence from consumer tracking reports and company presentations to stakeholders shows that pack innovations in shape and opening can prompt purchases of cigarette products, as indicated by an increase in market share. In 1992, following the results of a consumer tracking report, the new slide opening for the Vantage Ultima brand was credited by RJ Reynolds for attracting new smokers to the brand [28]. In presentation documents, Philip Morris credited the rounded corner box in 1989 for halting the decline of Multifilter in Italy [71], and in 1999 Philip Morris confirmed that an increase in Parliament shares was the result of the 100's rounded-corner box launch [77]. Accordingly, based on the results of a consumer tracking study, in 2002 RJ Reynolds anticipated that the new flip/slide opening for Salem would generate up to 0.40 share growth [34].

In 2000 Philip Morris introduced Parliament in an octagonal pack to several markets in the United States with the intention to increase sales. However, a consumer tracking report showed unexpected findings, in that after 12 weeks of its launch the octagonal pack had no significant impact on consumer purchases [64]. It was noted that the structural change was subtle at retail, and may not have been detected by consumers until after purchase when the pack was in their hand [64].

## DISCUSSION

To our knowledge, this is the first study to review tobacco industry documents on the impact of packaging shape, size and openings on brand and product perceptions and behavioural outcomes among consumers. The findings reinforce the importance of cigarette packaging for the tobacco industry [86].

Tobacco companies performed extensive pre- and post-market consumer research to ensure that novel packaging appealed to consumers and attracted users to the brand. The findings illustrate the relevance of pack structure among young people. Reduced pack size (slim packs) and unique shapes (booklet and oval) were especially appealing among young women [22,39,80], while rounded corners increased appeal among young adults [42], evidence that is consistent with previous 'independent' research [14]. Moreover, several internal documents contained references on the use of pack structure to attract young consumers to their brands [41,66,67,72,83], illustrating the value placed on young adults by the tobacco industry. For example, one research objective identified by Philip Morris in 1998 was 'to enhance the appeal of *Parliament* cigarettes for young adult smokers [through] new packaging constructions and designs' [41].

The findings expand upon previous packaging research, adding that pack shape and openings are effective at communicating desired brand imagery, and often convey 'modern', 'unique' and 'elegant' brand impressions [28,32,81]. Younger consumers have shown a susceptibility to the marketing effects of packaging in previous research by associating positive brand attributes to cigarette packaging [87].

Industry documents also suggest that increases in brand appeal due to pack innovation can translate into changes in consumer behaviour. The documents indicate that novel packaging prompted purchase interest among consumers and, on several occasions, tobacco companies gave credit to rounded-corner and slide-opening packs for their increased sales. This is consistent with a previous review of tobacco industry documents from the United Kingdom, which found that the Benson & Hedges Silver slide pack was attributed by an industry spokesman to increased sales in 2007 [88].

The review suggests that pack structure implies product attributes related to quality and taste. For instance, company research showed that beveled and rounded packs were perceived as higher quality among consumers; findings that are consistent with research outside the tobacco industry [14]. Perception of taste and the strength of cigarettes are associated closely with perceptions of risk among smokers [89,90].

Overwhelmingly, six of the seven documents that examined health-related perceptions indicated that pack innovation, specifically slim, rounded edges, octagonal and slide openings, increased perceptions of 'lightness' among consumers [22,25,31,32,34,55]. These findings add to previous qualitative research that suggested that perfume and slim packs decreased harm perceptions among youth and women [13,16]. Furthermore, pack shape has been used by the industry to communicate

product strength, as illustrated by documents from Philip Morris which stated that rounded edges were introduced on Multifilter and Parliament packs to convey product 'lightness' [21,71]. The findings suggest that innovation to pack structure does not meet FCTC Article 11 guidelines, which require that consumers are not misled by packaging [5].

Finally, the document review illustrates the growing importance of structural packaging for the industry. Of the 64 dated documents identified in this review, only 16 were produced between 1973 and 1989, compared to the 49 documents produced between 1990 and 2002. Furthermore, in a recent presentation to stakeholders, pack structure was described as a significant investment by Pierre De Labouchere, President and CEO of Japan Tobacco International: 'We're actively investing in Benson & Hedges and Silk Cut. A good example is the recent rejuvenation of Benson & Hedges Gold with a beveled pack that offers a modernized look and feel. This investment is paying off as both Benson & Hedges and Silk Cut have increased their share of the premium segment in 2010' [91].

The document-based research methodology used in this review has some limitations. Although a comprehensive set of search terms relating to pack shapes and openings were chosen that were expected to return relevant company research and marketing reports, some important documents could have been missed in cases where primary search terms were connected with descriptor terms in an effort to reduce the amount of returned documents. Not all pack types were captured by the search strategy due to the increasing number of innovations in structural packaging, and it is possible that relevant documents using different terminologies were not captured in the current review. In addition, the review did not incorporate an exhaustive list of search terms relating to package openings, which could have limited our understanding of the role these have on consumers. Nevertheless, this review consists of the most comprehensive search to date of tobacco documents relating to physical pack construction.

## CONCLUSIONS

The current review of tobacco company documents on pack shape, size and openings has the potential to inform international tobacco packaging policy. The findings suggest that pack construction is an important aspect of the tobacco industry's marketing efforts. Indeed, many of the packaging innovations described in industry documents, such as rounded, beveled and slim packs, are increasingly being implemented across markets [17]. The findings suggest that standardizing pack shape, size and opening method may limit brand appeal—particularly

among young people and women—and reduce false beliefs about the relative risk of different types of cigarettes. To this extent, the findings provide support for existing restrictions on pack shape and size implemented in Australia and proposed for in other jurisdictions, including the European Union.

## Declarations of interest

None.

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