An examination into the long-term characteristics of market share non-stationarity

The thesis submitted for the award of
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by

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Declaration

I declare that this thesis presents work carried out by myself and does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; to the best of my knowledge, it does not contain any materials previously published or written by another person except where due reference is made in the text; and all substantive contributions by others to the work presented, including jointly authored publications, is clearly acknowledged.

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Researcher(s)' own analyses calculated on (or derived from) in part (i) the retail measurement/consumer data from Nielsen Consumer LLC ("NielsenIQ"); (ii) media data from The Nielsen Company (US), LLC ("Nielsen"), data derived from four files namely, Panellists, Trips, Purchase and Product files; and (iii) marketing databases provided through the respective NielsenIQ and the Nielsen Datasets from the Kilts Center for Marketing Data Center at The University of Chicago, Booth School of Business.

The conclusions drawn from the NielsenIQ and Nielsen data are those of the researcher(s) and do not reflect the views of Nielsen. Nielsen is not responsible for, had no role in, and was not involved in analysing and preparing the results reported herein.

Abstract

Evidence-based studies by Ehrenberg and his colleagues spanning 50 years have shown that in the real-world brand market, non-stationarity (growth and decline) has some predictable patterns (Ehrenberg, 2001; Ehrenberg et al., 2004; Scriven & Goodhardt, 2012; Uncles et al., 1995). When summarised, these patterns show that 1) changes in market share are always within a stationary range (Goodhardt et al., 1984; Graham, 2013), 2) buyers in a category are split loyal, 3) more buyers buy bigger market share brands, and slightly more often than those buyers of smaller market share brands (Goodhardt et al., 1984; William N. McPhee, 1963; Sharp, 2010a) and 4) penetration and purchase frequency changes when brands grow; however, purchase frequency does not change much (Goodhardt et al., 1984; Sharp et al., 2012).

Despite these patterns consistently being proven and accepted as true scientific law of brand market share growth and decline (Sharp, 2010a), several limitations in these studies motivate this thesis. First, none of the research in the past 40 years has proven how long the stationary market condition prevails using long-term structured panel data. Second, the non-stationary state varies across categories, and due to a smaller number of categories used in these studies, it is still unclear how category conditions affect the non-stationary state of the brands. Third, past studies have also indicated that the non-stationary state of the brand varies across the brand's characteristics but only investigated in the short and medium terms. Finally, studies in the past have explained how market share changes when associated with the brand performance measures and marketing mix factors; however, there are no long-term studies using a larger sample of categories and brands and therefore there is no conclusive support for those patterns.

This thesis provides evidence of how and to what extent the market share stationarity prevails, how the non-stationarity of brands changes across various categories and brand conditions, and finally, how the changes in brand performance measure and marketing mix factors affect the market share non-stationarity over a long period. The thesis uses the most extensive big data over a 10-year period, which is not present in other past studies. It examines the panel data from 2009 to 2019, provided by Neilson Kilts Ad Intel and consumer panel data from the United States (US). The aggregated data for this thesis consists of everyday buying records of more than 61,000 households, 4,419 brands and 649 consumer packaged goods (CPGs) product categories that survived for this period. This thesis uses extensive R-codes to analyse the Many Sets of Data (MSoD) (Lindsay & Ehrenberg, 1993; Uncles & Wright, 2004). The information

and records are aggregated from big data files: Panellists, Trips, Purchases, and Product files. After aggregating over 65 million buying records each year of individual-level data, the thesis uses SPSS 22 for statistical tests and effect sizes. This thesis is divided into 4 individual studies to understand the characteristics of market share non-stationarity for a long period, as described below.

Study One extends our understanding of whether majority brand's market share remains stationary over a long period. Changes in market equilibrium, or stationarity of brand share, has appeared as a generalised finding in many studies; however, a lack of long-term structured panel data makes it unclear whether this condition will last over a long period. Study One extends the work of (C. Graham, 2009); Graham (2013) and Trinh and Anesbury (2015) by investigating stationarity in the US market over 10 years. The key findings from this study are as follows:

- The majority brand's majority brand's market share remains stationary over 10 years. The study finds that 55% of brands (4,419 brands in 649 categories) experience a change in market share by 3 percentage points or less.

- The proportion of dynamic brands (growing and declining brands by more than 3 percentage points) increases from 7% in one year to 31% in 5 and 45% in 10 years.

- The proportion of dynamic brands in a 10-year period is similar across purchase occasion, value, and volume metrics: purchase occasions=45%, value=44% and volume=44% points in 10 years with a correlation of 0.90 on average between the metrics.

Study Two examines how market share growth and decline varies across 5 category conditions, as past studies (Trinh & Anesbury, 2015) have shown that the share non-stationarity varies across categories. This thesis carefully designates 5 category conditions: **1. Category Structure based on relative penetration and purchase frequencies** (Dhar et al., 2001; Fader & Lodish, 1990; Trinh & Anesbury, 2015). **2. Market Concentration** (Bailey & Boyle, 1971; Salvatore, 1982; Tanusondjaja et al., 2020). **3. Category Promotion** (Ailawadi, Lehmann, et al., 2001; Dekimpe & Hanssens, 1995b; Nijs et al., 2001; Pauwels et al., 2002). **4. Growing,**

stable and declining categories (Dunn et al., 2020; Nenycz-Thiel et al., 2018; Tanusondjaja, Graham, et al., 2021), and for the first time, **5. Category Unit Price.** The study finds that:

- Over a 10-year period, brands in Fill-In categories (low penetration and low purchase frequencies) have the highest market share growth and decline (over 2 percentage points) after Niche categories (low penetration and high purchase frequencies). Staple (high penetration and purchase frequency) categories are more stable in market share changes (less than 2 percentage points) over the same period.

- Market share growth and decline increase with an increase in market concentration.

- Declining categories have a higher proportion of market share growth and decline than growing and stable categories over 2 percentage points in 10 years.

- No relationship exists between high or low category promotional value and volume, and the market share growth and decline.

- Categories with high unit prices show a slightly higher proportion of growth and decline than those with low unit prices. However, the Category Unit Price level does not influence this inequality. Category Unit Prices do not relate to market share growth and decline.

Study Three fills a knowledge gap by empirically examining 4 widely studied brand conditions to understand the relationship between brand market share growth and decline in those conditions in the long term. The study comprises the following brand characteristics: **1. Ownership Pattern**: private and manufacturer's brands (Dawes & Nenycz-Thiel, 2013; Dhar & Hoch, 1997; N. Kumar & J.-B. E. M. Steenkamp, 2007; Romaniuk et al., 2014a), **2. Brand Size**: big and small market share brands (Ehrenberg & Goodhardt, 2001; Ehrenberg et al., 2004; Graham, 2013), **3. Promotional Value and Volume** (Scriven and Ehrenberg, 2004; Tellis, 1988; Dunn et al., 2013) and finally, for the first time, **4. Brand Unit Price,** using index pricing**.** The finding from Study Three reveals the following:

- Market share growth increases as share size increases, meaning that brands with bigger shares have more growing incidences over 10 years. Conversely, the percentage of declining brands increases as share size decreases, which means that small share brands are declining more over 10 years.

- Manufacturing brands grow and decline more than private labels over 10 years.

- Brand promotional value and volume is not associated with market share growth over a long period (10 years); however, they are negatively associated with share decline. It shows that decreasing promotional value and volume increases the share decline over 10 years.

- Market share growth does not vary across price tiers. Price does not impact market share growth. It is significant when market share declines, showing that increasing the price index increases share decline. However, the effect is minimal and negligible.

Study Four investigates how changes in brand performance measures and marketing mix factors affect brand market share decline after one, 5 and 10 years. This study, for the first time, combines the changes in penetration, purchase frequency, and share of category requirements (SCR) with the changes marketing mix tools such as price, promotional value, and volume to investigate their simultaneous effects on market share growth and decline after one, 5 and 10 years. The results are as follows:

- When brands grow and decline, their penetration changes more than any other factor, implying that penetration is the key to increasing growth and averting share decline, regardless of the timeline.

- When brands grow and decline, purchase frequency is the second most significant factor. Over the one-, five- and ten-year period, purchase frequency changes less than penetration but more than any other factors tested. SCR change is insignificant over the same time periods.

- Unit price change increases as market share declines over a one-year period. Unit price change does not affect market share change after 5 or 10 years.

- Promotional value changes increase as the market share grows in a one-year period, with negligible effect. Promotional volume has no effect in the one or 5-year period. Both the promotional value and volume changes have no effect on market share change after 10 years.

In summary, the thesis provides several conclusive **original contributions**:

- Non-stationary or dynamic brands increase over time; the thesis finds a 7-fold increase in 10 years from one year, which indicates that buyer's inertia (Ehrenberg, 1988) of buying does not work over a long period and that brands have the chance to grow, despite sustained market share stationarity over 10 years. This increased growth and decline over 10 years in market share are similar for market share in value, volume, and purchase occasions.

- This thesis reveals that niche categories, or those with less penetration and purchase frequency, also grew and declined more over the 10 years, along with fill-ins (categories with less penetration and purchase frequencies). For both types of categories, a common pattern is that lower levels of category penetration experience more growth and decline over 10 years. This thesis has confirmed past studies that have demonstrated that the level of concentration by the manufacturers is associated with market share growth and decline. The thesis also concludes that category-level promotional value and volume are not associated with market share growth and decline. Finally, this thesis finds that share growth and decline do not vary across average category unit price levels.

- This thesis offers evidence that large brands face minimal risk of decline, which is also true for the manufacturer brands as most of them are large brands and have reached a mass audience through advertising. Additionally, brand price index level is not associated with share growth and decline.

- This thesis conclusively establishes that, regardless of time periods, change in penetration is associated with share growth and decline more than change in loyalty or change in marketing mix tools such as price and price promotion. In the 10-year timeframe, change in purchase frequency is also associated with share growth and decline.

The discoveries of this thesis have consequential **managerial implications**. Marketing practitioners can use the findings of this thesis to understand how their brands can behave in specific brand and category conditions over a long period, where and when to be cautious while launching a new brand and finally, how to prepare the marketing plan to manage share decline and achieve share growth. The findings of this thesis suggest that 1) managers should be aware that though the market remains stationary, there is an increased chance to grow their share in the long term through strategic planning, 2) there is more chance for growth in the categories with less penetration (fill-ins and niche categories), hence launching new brands in categories with low penetration has a higher chance of success, 3) managers should avoid launching a brand in a highly concentrated market or In categories that are likely to become highly concentrated, as further study is needed to understand whether smaller brands within these categories experience more decline or if larger dominating brands grasp more growth, 4) investing heavily in declining categories (in sales) will yield a loss even though it seems to increase the share in the long term, 5) managers of small brands should be more cautious and strategic with their marketing plans as they risk more share loss, 6) managers should re-evaluate their promotional expenditure as both category and brand level promotion and their changes do not affect growth or decline; they can plan to increase promotional value or volume during share decline to hold for a while; however, findings suggest that these investments cannot aid growth in the long term, 7) most importantly, managers and marketers should focus more on acquisition or increasing penetration; if the flow of buyers increases over a long period, many light buyers will become heavy and make more repeat purchases.