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**‘OOPS, MERCURY DID IT AGAIN’! EXAMINING CONSUMER BEHAVIOUR  
DURING MERCURY RETROGRADE PHASES**

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**ABSTRACT**

Over the past couple of decades, the market for astrology has seen considerable growth with beliefs related to astrological phenomena such as Mercury retrograde becoming mainstream and dictating how consumers go about making decisions in their lives. According to proponents of astrology, Mercury retrograde is a time where things go wrong and people are advised to not make any major decisions (including purchase-related decisions) during this period of time. The current study delves into this intriguing cross-disciplinary realm of astrology and consumer behaviour by investigating the impact of astrological beliefs linked to Mercury Retrograde on consumer behaviours, a domain that has received limited scholarly attention from marketing and consumer research scholars. Employing a mixed-methods approach that includes an exploratory qualitative analysis of consumer discourse on Reddit as well a quantitative analysis of a purchase-specific secondary dataset from DMEF, this research establishes initial foundations on how Mercury retrograde can impact consumer behaviours related to purchase. The findings of our study hold crucial theoretical as well as managerial implications.

**Keywords:** mercury retrograde, superstition, astrology, consumer purchase behaviour

# **‘OOPS, MERCURY DID IT AGAIN’! EXAMINING CONSUMER BEHAVIOUR DURING MERCURY RETROGRADE PHASES**

## **1. INTRODUCTION**

*“...for those asking how I cut my hand, I’m totally fine and it was my fault completely - tripped on my dress hem and fell in the dark backstage [...] It was all very Mercury in retrograde coded. Don’t worry about me I’m goooooood.”*

- Taylor Swift via a social media post on X (formerly Twitter), 25th April 2023<sup>1</sup>

If a global sensation like Taylor Swift can be tripped up (quite literally) by the spectre of Mercury retrograde, then it brings to light the pervasive and influential grip this astronomical event holds in contemporary society. As highlighted by Page (2023) in The Washington Post, the term “Mercury in retrograde” has graduated from astrological charts to mainstream dinner table discussions. From an astronomical lens, Mercury retrograde is nothing but the optical illusion of the planet Mercury moving backwards or ‘moonwalking’ – much like a celestial Michael Jackson – in its orbit, thanks to the varied speeds of our planetary ensemble (Davies, 2022; Botkin-Kowacki, 2023). Markarian (2023) poetically cautions, *“Everything that can go wrong will go wrong during this planetary movement”* and Swift's misstep might just be the tip of this cosmic iceberg. Astrologer Susan Miller emphasizes that Mercury governs communications, notably in trade activities like buying and selling (Miller, 2016). When Mercury is in retrograde, astrologically seen as a dormant state, it is believed to hinder its governed activities, leading to miscommunications and unfavourable outcomes. Significantly, since Mercury presides over trade, astrologers caution against major buying or selling decisions concerning consumer electronics, initiating business ventures, and formalizing contracts during this phase. Popular astrology figures like Susan Miller, Lisa Stardust, Jill

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<sup>1</sup> Retrieved from <https://twitter.com/taylorswift13/status/1650570744588296210>

Wintersteen, and Chani Nicholas not only boast impressive follower counts in the six-to-seven-digit range on platforms like X (formerly Twitter) and Instagram, but also frequently engage and guide their audience on matters pertaining to Mercury retrograde. If such a phenomenon can have celebrities, influencers, and netizens alike attributing life's hiccups to it, can consumer behaviour remain untouched? In this paper, we delve into the intricacies of how Mercury retrograde, with its storied past and substantial cultural weight, might just have a role to play in shaping consumer buying patterns and decisions.

While the scientific community might regard astrological interpretations of Mercury retrograde as potential illusions, there exists a compelling argument that its cultural and commercial ramifications could very well be tangible. Astrology's influence has been significant, especially in the West, and is demonstrably amplified by a constellation of influential astrologers who command vast digital audiences across social media platforms. This influence is however not limited to mere social media impressions and digital trails left behind on platforms like Google bear testament. The term "Mercury retrograde" has surged in search popularity since 2009 predominantly in the United States, punctuated with predictable peaks coinciding with the weeks in which Mercury goes retrograde<sup>2</sup> (Davies, 2022). This suggests that Mercury retrograde is a widely held belief in the society. We hypothesize that individuals who believe in the negative effects during Mercury retrograde phases may refrain from making new purchases.

While prior literature in marketing and consumer research has explored a few broad aspects of astrology, to the best of our knowledge, the impact of Mercury retrograde on consumer behaviour has not been examined. For instance, prior studies have either focused on (1) the impact of astrological beliefs related to "star" or "sun" signs on consumer

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<sup>2</sup> Retrieved from Google Trends data at <https://trends.google.com/trends/explore?date=all&geo=US&q=mercury%20retrograde&hl=en>

behaviour and implications for market segmentation (e.g., Mitchell, 1995; Mitchell and Haggett, 1997; Mitchell and Tate, 1998), (2) the influence of trait superstition on a consumer's likelihood to believe in astrology (e.g., Mowen and Carlson, 2003; Carlson, Mowen, and Fang, 2009), (3) the impact of superstitious beliefs of consumers on the importance they place on their horoscopes (Sierra et al., 2015; Sierra, Hyman, and Turri, 2018), and (4) a consumer's belief in fortune-telling and its corresponding impact on brand-related perceptions (Wang et al., 2012). However, a diverse array of astrological traditions and beliefs exists in the consumer world (Campion, 2012), all of which can have a profound effect on consumer beliefs, attitudes, preferences, decision-making processes, choices, and behaviours. These astrological beliefs are deeply ingrained in our societies and have been reproduced by various cultures and religions. Mercury retrograde is one such tradition, deeply rooted in many cultures. It's clear that while we have some understanding from the existing research, there's more to uncover, especially about specific events like Mercury retrograde and their impact on consumer behaviour.

We structure our paper as follows. First, we provide a conceptual overview of superstitious beliefs in general, and the psychological mechanisms that explain why people believe in them. Second, we discuss the phenomenon of Mercury retrograde and develop our hypotheses on the impact of Mercury retrograde beliefs on consumer behaviour. Third, we present our three studies. In study 1, we conduct an initial qualitative inquiry to explore if consumers are in fact, worried about purchase related decisions during Mercury retrograde. In study 2, we empirically examine purchase-related behaviours of consumers during Mercury retrograde phases using secondary sales data from a direct marketing company, provided by DMEF (Direct Marketing Educational Foundation).

## 2. THE PHENOMENON OF MERCURY RETROGRADE

*“Brace yourself, because when Mercury goes into retrograde this fall, your whole world might feel like it's been flipped upside down – doomed to a serious of unfortunate flops. [...] Whatever the issue, you can totally blame in on the retrograde.”*

- Casciano (2022)

The phenomenon of Mercury retrograde, which is marked by the celestial event of the planet Mercury entering in a retrograde motion, has gained overwhelming popularity over the past few years (Davies, 2022). As discussed before, this retrograde motion of the planet is the result of an optical illusion caused by different relative speeds of planetary movements. According to proponents of astrology, this event initiates the beginning of misfortune on the Earth, which supposedly lasts throughout the timespan of this event. As per astrological traditions, any planetary retrograde motion has negative connotations, including that of Mercury. The phenomenon of Mercury retrograde is said to impact various aspects of people's lives, particularly in the realm of communication (Botkin-Kowacki, 2023). The astrological belief behind planet's apparent connection with communication traces its roots back to ancient Roman mythology and its messenger god Mercury (also known as Hermes in ancient Greek mythology). As per mythological accounts, Mercury is said to have ruled all forms of communication and connections between people as well as documents (Kerr, 2023). Said to have been the cleverest of the Olympian gods, Mercury served as a swift messenger for all other gods and ruled over wealth, commerce, trading, good fortune, thievery, and fertility. The link between myths associated with Mercury the god and astrological beliefs regarding Mercury the planet (for example, the potential impact of Mercury retrogrades) are largely symbolic and based on a similarity in characteristics between the two. For instance,

comparisons are drawn between the agility and speed of Mercury the god, and the swift movement of the planet Mercury in the sky.

According to the famous astrologer Susan Miller, the planet Mercury rules all kinds of communication, which include listening, speaking, learning, reading, buying, and selling (Miller, 2016). When a planet is said to be in retrograde, astrologically it is in a sleeping or resting state. This has a subsequent negative impact on all the activities that the planet governs, resulting in unfavourable outcomes. The astrological tradition characterizes this phase as one of miscommunications, and people are asked to exercise caution in any communicative activity. Next, Miller explains that since Mercury is said to rule trade and commerce, astrologers consistently advise people against engaging in significant buying or selling decisions (particularly related to electronic gadgets), starting new ventures, travelling, make important decisions or plans, and sign formal contract agreements, during this period. While she does not offer a specific explanation, Miller broadly mentions that not adhering to such guidelines could result in problems cropping up at a later stage that are “completely unanticipated”. To illustrate, she says that if one were to take a new job during this phase, then they might suddenly find themselves in a situation where the situation in the new company turns bleak – e.g., people start losing their jobs, the said person doesn’t get the job title they were originally promised, and so on. She also asserts that if expensive things are brought or sold during this time, one can expect “problems, errors, delays, and setbacks to arise”.

### **3. CONCEPTUAL FOUNDATIONS**

In order to build a conceptual understanding of Mercury retrograde as an astrological phenomenon that has an influence on consumer behavior, we first provide an overview of astrological beliefs in general. Following that, we venture into the superordinate domain of

superstitious beliefs (astrological beliefs fall under the category of superstitious beliefs) and explore conceptual perspectives provided in extant literature on why people believe in superstitions. Over the course of our arguments, we do not make any claim regarding the truth or veracity of astrological beliefs such as Mercury retrograde. Our sole aim in this paper is to investigate the possibility of consumers believing in such phenomena and regulating their purchase behaviour accordingly.

### **3.1. Astrology - Introduction**

Prior research describes astrology as the attempt at predicting the destiny and/or character of an individual by observing the position of the stars at the moment when that particular person was born (Mowen and Carlson, 2003). Approximately every one out of three Americans believe in astrology (Carlson, Mowen, and Fang, 2009) with as many as 70 million Americans said to be reading their horoscopes daily (Stierwalt, 2020). Several celebrities such as Beyoncé, Kendall Jenner, Lady Gaga, Selena Gomez, and Angelina Jolie have publicly expressed their beliefs in astrology (Grčar, 2021). Recently, the fate of Indian footballers was handed over to the stars as Igor Stimac, the football coach of the Indian men's national football team, turned to an astrologer to pick the squad for an upcoming tournament (India Today Video Desk, 2023). Moreover, interest in astrology has also found its way into chambers of national policy. In fact, the United States of America's long history of having its presidents - President Theodore Roosevelt, President Franklin D. Roosevelt, and President Ronald Reagan – fascinated with astrology (Roberts, 1988). Astrology is not alien to the business world either, with historical records of companies using astrological profiles for segmenting consumers as well as consulting astrologers on problems such as marketplace changes, recruitment, and plant locations (Mitchell and Haggett, 1997). The field of astrology is growing even today, as evidenced by the countless websites, mobile applications, platforms, podcasts, best-selling books, and social media accounts that cater to astrologically



inclined individuals (Page, 2023). To illustrate, 13 million unique readers across the globe annually visit the website “AstrologyZone.com” (founded by prominent astrologer Susan Miller) to read their daily horoscope-based forecasts (Susan Miller Astrology Zone, n.d.). Additionally, a recent report published by Allied Market Research valued the global astrology market at \$12.8 billion in 2021, with it projected to grow at a CAGR<sup>3</sup> of 5.7% to reach \$22.8 billion by 2031 (PR Newswire, 2023).

### **3.2. Superstitious Beliefs**

Consumer beliefs (and corresponding behaviours) regarding astrology are examples of superstitious beliefs (Kramer and Block, 2011). Superstitious beliefs are those that do not conform to conventional notions of rationality or well-established laws of nature (Kramer and Block, 2008). These beliefs are pervasive throughout the consumer world and have been in existence for thousands of years (Vyse, 2014). In fact, it has been found that more than half of US and UK adults are at least mildly superstitious (Sierra, Hyman, and Turri, 2018). Damisch, Stoberock and Mussweiler (2010) explain that superstitions typically involve an irrational belief that actions, objects, or circumstances, which are not logically related to an event(s), can directly influence the outcome of that event(s). It is widely believed that adhering to superstitions can help in achieving positive outcomes, while avoiding negative ones (Hamerman and Johar, 2013). Superstitions can be categorized as either personal or cultural, and are commonly invoked to bring about good luck, or fend off bad luck (Block and Kramer, 2009). Personal superstitions operate at the individual level and develop based on an individual’s beliefs or experiences – e.g., golfing legend Tiger Woods regularly wore bright red shirts to his games thinking it would improve his performance (Jackson, 2017). To take more general cases, consider students bringing lucky charms or luck pens to examinations, job applicants wearing a lucky outfit for an interview, athletes not changing their socks

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<sup>3</sup> Abbreviation used for “Compound Annual Growth Rate”.

throughout a tournament, and so on – all with the expectation of achieving a desired positive outcome (Kramer and Block, 2008). Cultural superstitions are shared beliefs and practices that operate at the level of a particular group, community, or society. Chinese residents ward off ill luck by placing mirrors in front of their homes (Simmons and Schindler, 2003), Indian shop owners hang lemons and green chillies at their shop door to prevent misfortune (India Today, 2015), and Westerners cross their fingers or knock on wood for good luck (Damisch, Stoberock and Mussweiler, 2010). Culturally specific superstitions can also impact consumer behaviour in vastly different ways. Take for instance the number “4”, which is considered to bring bad luck in Chinese cultures – to the extent that many buildings in China do not have a fourth floor (Wang, Oppewal, and Thomas, 2017). On the other hand, Western cultures view the number “13” as unlucky and avoids it while numbering hotel floors or airport gates (McCartney, 2013; Leasca, 2022). Similarly, the numbers “8” and “7” are thought to bring good luck in Chinese and Western cultures respectively (Block and Kramer, 2009).

Superstitious beliefs can also affect marketplace behaviours, which has led marketing and consumer research scholars to take a keen interest in this phenomenon (e.g., Kramer and Block, 2008; Block and Kramer, 2009; Carlson, Mowen, and Fang, 2009; Wang et al., 2012; Hamerman and Johar, 2013; Ang, Lai, and Leong, 2014; Wang, Oppewal, and Thomas, 2017; Sierra, Hyman, and Turri, 2018; Pusaksrikit et al., 2018). For example, many researchers have documented the important role played by the traditional Chinese belief of “Feng Shui” in house purchase decisions (e.g., Luk et al., 2012; Peng, Hsuing, and Chen, 2012; Wu, Yau, and Lu, 2012). In other studies, Simmons and Schindler (2003) conducted a content analysis of Chinese advertisements and found that the lucky number “8” was overrepresented while the unlucky number “4” was underrepresented in advertised prices. Kramer and Block (2008) discuss impact of consumers’ superstitious beliefs on post-purchase product satisfaction and decision-making under uncertainty. Block and Kramer (2009) demonstrate how superstition-

driven expectations cause Taiwanese consumers to make irrational purchase decisions in favour products with positive superstitious associations such as “lucky” number of units in a package or “lucky” colours. In fact, prior research illustrates how the successful use of a product may engender good-luck related beliefs, leading consumers to use the resulting “lucky” product in future to control desired outcomes (Hamerman and Johar, 2013; Hamerman and Morewedge, 2015). Further, Wang and colleagues (2012) reveal how consumers’ belief in fate negatively impact their evaluation and sensitivity<sup>4</sup> towards brand logos while consumers’ belief in fortune-tellers, magic, lucky charms, and superstitious beliefs positively impact the same.

### **3.3. Psychology of Superstitions**

Rooted in anthropology research, Malinowski’s (1948) theory of the gap was the first influential theory that sought to explain why people believe in superstitions (Westjohn, Roschk, and Magnusson, 2017). In his work, Malinowski elucidates how individuals rely on superstitions for reducing anxiety in the face of risk or uncertainty. Malinowski’s contention has been supported by other research which found that superstitious behaviour is more prevalent in stressful, risky, and uncertain circumstances (e.g., Padgett and Jorgenson, 1982; Keinan, 2002; Tsang, 2004; Kramer and Block, 2008). Although widely considered to be irrational, superstitions may help in alleviating the discomfort associated with uncertainty, thereby allowing individuals to cope with such situations better (Wang et al., 2012). Under uncertainty, acting in accordance with superstitious beliefs can have a cathartic function by providing a sense of control and relief to the people engaging in them. Case et al. (2004) state that gaining control is a fundamental psychological motivator, with higher perceived control capable of engendering positive physical and psychological outcomes. From this perspective, even gaining a feeling of control is of value to individuals. Westjohn, Roschk, Magnusson

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<sup>4</sup> How sensitive they are towards visual images and meanings contained in brand logos.

(2017) clarify that control, as applied to the context of superstitious behaviour, is illusory<sup>5</sup> in nature and can be seen as people aligning with luck when faced with uncertainty. Case and colleagues (2004) share that the usage of superstitious strategies acts as a backup under situations where an individual's actual primary control over the environment is diminished. The compensatory usage of superstition in these circumstances suggests secondary control.

According to Hamerman and Johar (2013), the phenomenon of superstition has its roots in operant conditioning. They invoke the theoretical tenets of the associative learning model to disclose that superstitious behaviour takes place when people are conditioned to become consciously aware of the link between two events, even if these events might be erroneously correlated to each other. Consider how an individual who is conditioned to believe that a four-leaf clover will bring them luck, might choose to carry such an item with them on the day of an important examination or a job interview. When people choose to consciously act on such conditioned superstitious beliefs, they are strategically trying to exert influence over the environment. In other words, they are engaging with superstitious behaviour so as to facilitate greater illusory control that allows them to optimistically deal with uncertain future outcomes. People typically resort to superstition when they desire to control outside circumstances, but also perceive a lack of ability to exert this control. Hamerman and Johar find that the desire to control outcomes, and consequently the exhibition of superstitious behaviour, increases in the case of valued (vs. non-valued) events because people have a greater desire to control such outcomes. For example, athletes have been found to engage in superstitious rituals for more (vs. less) important competitive events (Schippers and Van Lange, 2006). The usage of superstitious strategies also increases when an individual's control over an event is threatened under conditions of high likelihood of

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<sup>5</sup> Control processes are primary or secondary in nature (Westjohn, Roschk, and Magnusson, 2017). Primary control processes are those that can instrumentally affect outcomes while secondary control processes are attempts to achieve control in the absence of primary control. Secondary control can be of four types – predictive, vicarious, illusory, or interpretive (Rothbaum, Weisz, Snyder, 1982).

failure (Case et al., 2004; Kramer and Block, 2008). The use of superstitions can also be explained from a cognitive learning perspective, which suggests that superstitious beliefs and behaviours helps individuals to understand otherwise unfamiliar and inexplicable phenomena in their environment (Keinan, 2002).

As briefly discussed above, individuals typically engage with superstitious behaviours in a conscious manner. If a consumer wishes to not make an important purchase on Friday the thirteenth (a date typically associated with misfortune), then the consumer is consciously choosing to avert a potential negative consequence, in line with the superstitious belief. However, researchers believe that superstitious beliefs impact consumer behaviour through a combination of both conscious and non-conscious processes. The operation of superstitions at a non-conscious level was first empirically demonstrated through a series of experiments by Kramer and Block (2008). These researchers found that the non-conscious and conscious components of superstition can occur together, with the former being relatively three times greater in magnitude than the latter. The co-occurrence of the conscious and non-conscious components of superstition has also been documented by other scholarly work in this domain (e.g., Risen and Gilovich, 2007; Risen and Gilovich, 2008; Kramer and Block, 2011). The non-conscious processing of superstitions is conceptually similar to how stereotypes are processed. Just like stereotypes, superstitious beliefs are socially transmitted and learnt through socialization processes (Devine, 1989). These associations are automatically activated in the presence of an environmental cue, but can be subsequently controlled through conscious thought. The extent to which conscious processing takes place depends on the cognitive resources available to the individual – under high cognitive load, the subsequent conscious processing might not be possible (Risen and Gilovich, 2008). The non-conscious usage of superstitions can manifest through consumers making irrational decisions that run counter to common sense. A demonstration of this is found in Block and Kramer's (2009)

study, where they find that Taiwanese consumers are more likely to purchase and willing to pay a greater amount for a package containing the lucky number of eight as compared to ten tennis balls – a purchase that goes against rational economic choice. Overall, superstitions may influence consumer behaviour through predominantly conscious processing, predominantly non-conscious processing, or a mixture of both (Kramer and Block, 2011).

Hamerman and Johar (2013) assert that the desire for control, at an individual level, determines the extent to which consumers make superstitious choices. People with a higher (vs. lower) desire for control is more likely to attempt to influence their environment through superstitious behaviour. On the other hand, people with a higher level of self-affirmation and self-efficacy are less likely to display superstitious behaviour because they perceive their internal resources to be enough for controlling the environment. Superstition has also been developed as an individual, situational-level trait termed as “trait superstition” (e.g., Mowen and Carlson, 2003; Carlson, Mowen, and Fang, 2009). This trait captures the propensity of people to be superstitious and differences in this trait are predictive of a plethora of consumer behaviours ranging from beliefs in astrology, interest in gambling, keeping good-luck charms, and so on. This line of research also puts forward important predictors of trait superstition, which include an individual’s need for learning, competitiveness, impulsiveness, and present-time focus. The dimensions of a superstitious belief itself – its valence, accessibility, and relevance – has also been found to impact consumer choice (Ang, Lai, and Leong, 2014). Individuals are likely to make choices that are faster and in line with a superstitious belief if the superstition itself is negative, accessible, and relevant.

Drawing from such established conceptual foundations on superstitious beliefs and why people believe in them (as outlined in the prior paragraphs), this research seeks to examine how the astrological belief of Mercury retrograde can impact consumer decision-making. While several astrological beliefs are linked with Mercury retrograde, we limit our

focus in this paper to beliefs related to trade and commerce – in specific, purchase-related decisions made by consumers. Such beliefs related to Mercury retrograde phases can be seen as negative superstitions wherein consumers are advised by astrologers to withhold undertaking activities like buying and selling items so as to prevent the onset of misfortune or bad luck. Negative outcomes in this context can be consumers believing that items purchased during Mercury retrograde being more prone to malfunctioning, performing below expectations, and bringing about lower overall satisfaction because of the period being associated with bad luck. Ito and colleagues (1988) reveal that negative information is more diagnostic and informative than positive information. As a result, negative superstitions develop and maintain corresponding behaviours in line with the superstition to a greater extent than positive superstitions. While there are certain cases to the contrary (e.g., Ng, Chong, and Du, 2010), the broad literature on superstitions supports the bias towards negative superstitions and contends that negative superstitions have a stronger influence on consumer choice than positive superstitions (Ang, Lai, and Leong, 2014). This further underscores our suspicion that astrological beliefs related to Mercury retrograde are likely to have a significant influence on consumer decisions and behaviours. Thus, recognizing its possible influence on consumer behaviour, we seek to empirically understand whether and how astrological beliefs associated with Mercury retrograde affect consumer purchase-related activities. The results of our research not only have the potential to further theoretical knowledge in this domain, but can also have significant practical implications for marketers aiming to understand their consumers better and devise their marketing activities accordingly. We conduct three studies to carry out this investigation.

#### **4. OVERVIEW OF STUDIES**

We begin our investigation with a preliminary qualitative study (Study 1) where we aim to analyse and interpret consumer discourse on Mercury retrograde and its impact on purchase-

related attitudes and behaviours. In Study 2, we examine two hypotheses concerning consumer purchasing patterns during Mercury retrograde phases using secondary sales data sourced from DMEF. Specifically, we posit that during Mercury retrograde there will be a reduction in both the volume and value of consumer purchases. The logical arguments behind these three hypotheses will be provided under Study 2. Finally, we will conduct a primary survey-based study to capture astrological beliefs of consumers regarding Mercury retrograde and ask them to share their purchase-related transaction history on e-commerce platform Amazon over the past year. Participants will also be asked to share their subjective evaluations of certain purchases made. Capturing primary data on consumer beliefs related to Mercury retrograde will enable us to make more robust causal interpretations regarding its impact on purchase-related behaviours.

## **5. STUDY 1 – DO PEOPLE ACTUALLY BELIEVE IN MERCURY RETROGRADE?**

### **5.1. Study Description**

Our first study is exploratory in nature, where we adopt a qualitative approach to build a preliminary understanding of consumer discourse related to the phenomenon of Mercury retrograde. For this purpose, we employ secondary data analysis of user discussion posts related to Mercury retrograde as extracted from Reddit (<http://www.reddit.com/>), one of the most popular social networking platforms in the world. Users on Reddit share their thoughts by creating discussion “threads” under “subreddits” – which are dedicated spaces for organizing sub-communities within the platform. A Reddit thread begins with an original “parent” post and also comprises a collection of comments from users discussing the topic of the initial post. These threads contain information, opinions, questions, insights, and personal experiences of individual community members, thereby producing an extensive repository of perspectives and knowledge. An examination of thread-level data on Mercury retrograde



offers us access to a comprehensive and diverse range of consumer beliefs, attitudes, and experiences related to the said astrological phenomenon. Thus, Reddit emerges as a suitable context for carrying out our research. By analysing relevant threads, we seek to tease out the effect of astrological beliefs related to Mercury retrograde on the purchase beliefs, attitudes and behaviours of consumers.

## 5.2. Data Collection

Our corpus for this study is based on textual data extracted from Reddit threads discussing the phenomenon of Mercury retrograde. We use the R-based tool “Reddit ExtractoR”<sup>6</sup> that leverages the Reddit API (Application Programming Interface) to systematically search for and extract pertinent data from Reddit. Using this tool allowed us to efficiently collect exhaustive data from multiple subreddits and threads (including user posts, comments, and associated replies). At first, we identify relevant subreddits for our analysis by using a thread-level search query for the keyword “Mercury retrograde”, in order to retrieve a list of threads related to Mercury retrograde across all subreddits. From an initial examination of the number of threads retrieved across different subreddits and their engagement metrics (number of votes “up” and “down” received by a post), we identify five subreddits relevant to our study: r/AskAstrologers, r/astrology, r/astrologymemes, r/MercuryRetrograde, r/witchcraft (refer to Table 1 for an overview on these subreddits). Within each of these subreddits, textual data on threads that contained the keyword “Mercury retrograde”, along with associated comments were extracted (as of 15th August, 2023). The extraction process yielded a total of 823 threads, which represented a substantial corpus for analysis. We further refined the dataset by removing threads that were irrelevant to our analysis.

*[Insert Table 1 here]*

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<sup>6</sup> A package that can be installed in the R software to extract textual data out of Reddit. Retrieved from <https://cran.r-project.org/package=RedditExtractoR>

### **5.3. Qualitative Analysis of Reddit Threads**

For our main analysis, we predominantly focused on thread texts and also considered comments selectively, based on their relevance to our research question. While thread texts offer an elaborate overview of central discussions related to Mercury retrograde, comments often offer additional depth and nuanced perspectives. Our analysis followed an inductive approach wherein we first immersed ourselves into the data by reading through the threads so as to familiarize ourselves with the discussion topics. We next engaged in a more thorough examination of the text by reviewing each thread (and associated comments) carefully. This was followed by identifying meaningful patterns within the textual data that represented consumers' distinct beliefs, opinions, and experiences related to purchasing in Mercury retrograde. Once initial purchase-related themes were identified, we engaged in an iterative process of refinement and consolidation where we categorized similar themes together, and collapsed concepts that were redundant or overlapping.

### **5.4. Findings from Qualitative Analysis**

We present our analysis under the conceptual framework of the customer purchase journey, which has been widely established and applied in marketing literature (e.g., Fuller et al., 2023). The purchase journey typically categorized into three distinct stages: the pre-purchase stage, the purchase stage, and the post-purchase stage – see Lemon and Verhoef (2016) for a detailed review of the customer purchase journey stages. In the pre-purchase stage, customers interact with brands, products, or categories before any purchase-related transaction. The pre-purchase stage has been traditionally characterized as comprising of behaviours such as need recognition, information search, and consideration. The purchase stage comprises all interactions that a customer has with a product, brand, or category during the purchase event. This phase typically consists of behaviours like choice, order placement, and subsequent

payment. The third and final stage of the purchase journey, the post-purchase stage, encompasses interactions that consumers have with products, brands, or categories after the actual purchase event. This includes behaviours such as consumption or usage, post-purchase engagement, information spreading (through offline or online word-of-mouth), repurchase behaviours, seeking new alternatives and starting the purchase cycle from the beginning, and so on. It is imperative to note that while these stages are distinct to each other in terms of the consumer behaviours that take place within them, they are not necessarily linear and can be increasingly dynamic and iterative in nature with a high number of customer touchpoints. Keeping the customer purchase journey as our conceptual backdrop, we present findings from the qualitative analysis of Reddit threads on how beliefs associated with Mercury retrograde can impact consumer purchase beliefs, attitudes, and behaviour across the stages of the purchase journey.

#### 5.4.1. Pre-Purchase Stage

*5.4.1.1. Evangelization.* Individuals come to purchase scenarios during or right before Mercury retrograde phases either aware or uninformed about the phenomenon. Consumers who are aware about beliefs related to mercury retrograde can either be classified as “believers” or “sceptics” based on their attitudes towards the phenomenon. Believers are the individuals who are not only aware of the timelines of Mercury retrograde, but they believe in its astrological connotations. Sceptics, on the other hand, choose to not believe in the alleged implications of Mercury retrograde, and their purchase behaviours are also not impacted by the event. However, the most critical aspect under this theme deals with the attitude formation of uninformed consumers towards Mercury retrograde. These consumers, during their search for information related to the context of purchase, might get to know about the existence of a phenomenon like Mercury retrograde and its potential impact on future purchase outcomes. Their information search phase might now involve the additional phase

of understanding the phenomenon better (e.g., “*Sorry for my ignorance, but what does mercury retrograde actually entail?*”), which includes questioning the veracity of its claims:

*“Can you explain why retrograde is a bad thing? I ask because, scientifically-speaking, retrograde is when the angle of planet movement we see from Earth makes the planet APPEAR as if they are moving backwards when they are NOT literally.”*

Their attitudes are likely to not only be impacted by their inherent disposition towards believing in superstition [i.e., trait superstition, as conceptualized by Carlson, Mowen, and Fang (2009)], but also by the kind of information they receive on Mercury retrograde from astrologers and other believers in the phenomenon. Believers commonly seek to evangelize uninitiated consumers by informing them about the impact of Mercury retrograde on myriad aspects of life – including purchase decisions. They suggest that Mercury retrograde could cause shipments to come late and/or damaged, lead to technical difficulties with electronic devices, and an overall lack of mental clarity that could interfere with making a sound purchase decision. Consequently, believers caution others to not make any significant purchases during Mercury retrograde, or be extremely careful while doing so: *“Definitely, do your research before buying a big purchase and read the fine print! That's for always but especially during Mercury Rx.”*

Users who are new to such beliefs, often question the basis for these claims, and ask believers to explain how a celestial event such as Mercury retrograde can impact something as seemingly unrelated as a purchase made by the concerned users. To this, believers provide astrological explanations, seeking to enlighten these individuals regarding Mercury retrograde and provide them logical arguments as to why it should be believed

*5.4.1.2. Uncertainty Diffusion.* Uncertainty and confusion run rampant across the pre-purchase stage among several consumers right before or during Mercury retrograde periods.

Consumers, particularly those who are still relatively new to the phenomenon, seek advice on a variety of purchase related issues. They might ask general questions like whether it is the right time to make a major purchase, or be much more specific and try to understand how purchase outcomes of different product categories are likely to be impacted by the retrograde. Users are predominantly concerned about major purchases such as houses or cars, as well as electronic appliances such as mobile phones. Their uncertainty manifests in terms of them experiencing a dilemma over the timing of their purchases, i.e., whether they should wait out the retrograde period before they make the said purchase:

*“Mercury Retrograde is approaching. Is now a good time to buy a car? [...] I always understood MR to be more about technology and communication. Not sure where cars fit into that.”*

Advice received by consumers on discussion threads like these are also mixed in nature. To illustrate, some community members showcase their approval and advise the consumer to go ahead with the purchase (e.g., *“If you have this opportunity go ahead, just be sure you read everything twice before signing the contract.”*), while others might ask them to exercise restraint and wait till the event passes (*“[...] it is wise to wait, till the 24th when Mercury comes out of its storm”*). Such conflicting opinions create a general atmosphere of uncertainty and increase the perceived risk of making purchases during this period, leading to confusion and anxiety. This confusion is further enhanced with many consumers willingly venturing deeper into the domain of astrology and trying to make sense of astrological ideas and charts in order to apply them in their lives:

*“Should i buy a phone during mercury retrograde [...] First I wanna start by saying that i've read somewhere that it depends in which house is it. If it's in 3,5,7 it effects electronics and if*

*it's in the others it effects relationships? I'm so confused. [...] I feel like i'm overthinking it  
[...] I believe in astrology but i don't understand all the things.”*

Interestingly, the uncertainty experienced by individuals also extends to the domain of impulse buying. One user writes about how they always get “exciting ideas” right before a retrograde phase, which culminates in them facing an internal conflict and ending up worrying about whether to follow through with it or not. This hints at the possibility that consumers might be more attuned towards impulse recognition with respect to purchases during a retrograde phase. A likely reason for this might be the fact that the stress and uncertainty brought forth in consumers’ lives by mercury retrograde might deplete their ability to exercise self-control, leaving them more vulnerable towards impulsive behaviours (Baumeister, 2002).

#### 5.4.2. Purchase Stage

*5.4.2.1. Uncertainty Coping.* The widespread uncertainty and anxiety around Mercury retrograde phases push consumers towards seeking for ways on how to cope with the induced stress during the purchase scenario. Consider the following user who expresses a high level of emotional distress, something that characterizes what many consumers go through during a retrograde phase:

*“I feel severely blocked during Mercury Retrograde too, like I'm trudging through a swamp. So tough to get a single thing done during these.”*

The most common way consumers cope with the induced uncertainty is by soliciting advice from those who are seemingly knowledgeable about the phenomenon. Consumers who post purchase-related questions regarding Mercury retrograde wait to hear the answers of community members before deciding whether to go ahead with the purchase. However, it is unclear as to how consumers ascertain the credibility of the information provided by other

community members under such threads. This leads to the possibility that apart from seeking advice, consumers actively yearn for external validation from community members to help them cope with the dissonance that arises with wanting or having to make a purchase during a Mercury retrograde phase. This aspect is exemplified by the tension experienced by consumers when they have to make an essential purchase, but also want to adhere to astrological guidelines. For instance, one Reddit user explains that they need to purchase a car out of necessity because their family is expecting a child. However, they still report their hesitation in going ahead with the purchase. Another user in a similar car purchase situation mentions that they are aware about the negative implications of Mercury retrograde but they feel like they have to buy a car because of being able to go to work. They proceed to inquire potential ways of dealing with such a situation while also expressing a desire to validate their circumstance by inviting others to share stories of similar situations:

*“[...] anyone else ever been forced to make major decisions during Mercury retrograde or its shadow period?”*

Along similar lines, users also contemplate about the potential of reversal of unfavourable outcomes during a retrograde (e.g., *“Do you think actions taken during Mercury Rx will try to be corrected or undone when it goes direct?”*). This is primarily done with the intention of allowing themselves some amount of room for error, where they reduce their levels of dissonance with making a purchase in a retrograde phase by hoping that even if it turns out to be a wrong decision, the negative effect of such an outcome will not linger on.

*5.4.2.2. Purchase Deferral.* The atmosphere of uncertainty, fear, and risk around Mercury retrograde can cause consumers to withhold their purchase-related decisions till the event passes because of low levels of purchase confidence. By deferring their purchase decision to a later period of time, the consumers alleviate themselves from the dissonance associated

with making a purchase during a retrograde phase, especially if they are confused and anxious about making a purchase during Mercury retrograde. For some consumers, purchase deferral comes about based on the advice of other community members. While astrologers and believers provide guidelines related to purchase behaviours during retrograde, many other consumers share their personal stories of how their purchase outcomes have been negatively impacted by Mercury retrograde phases. These stories are mostly about negative purchase experiences and consumers who take these stories as diagnostic information, might be hesitant to make purchases within a retrograde phase and defer it to a later date. On the other hand, some consumers might be unwilling to make retrograde purchases because of unfortunate past experiences related to the phenomenon:

*“I wouldn’t buy electronics either way. Most times that I have it’s been a mistake lol. Also I’ve had a bunch of delivery issues so now I try to avoid big online purchases during Mercury retrograde.”*

#### 5.4.3. Post-Purchase Stage

*5.4.3.1. Product Experiences.* Various consumers share their stories of how they experienced negative outcomes with products that they had purchased during a Mercury retrograde phase. They recount how purchased products malfunctioned, failed, or performed below expectations during this period. The typical products were mentioned included electronic appliances (e.g., *“One of the shittiest things during Mercury retrograde is electronic devices acting up out of nowhere!”*), mobile phones (e.g., *“[...] during Mercury retrograde my iPhone just stopped working and never turned back on”*), laptops (e.g., *“My laptop broke a day into retrograde, during major research and before a road trip”*), computers (e.g., *“[...] my computer broke... One of the CPU cooler bearings full on snapped for no apparent reason”*), software (e.g., *“Outlook kept crashing and Spotify wouldn’t work”*), vehicles (e.g.,



*“New Vehicle bought during MR - now broken!”*), or any general item (e.g., *“I swear everything has broken this mercury rx”*). As a result of such unfortunate product-related experiences, consumers can experience low levels of decision satisfaction with respect to purchases made during Mercury retrograde. This leads to subsequent behaviours such as negative word-of-mouth regarding Mercury retrograde wherein dissatisfied consumers tend to dissuade other prospective buyers from making retrograde purchases.

5.4.3.2. *Conversion*. Poor product-related experiences during retrograde phases can convert disbelieving, hesitant, or uncertain consumers into firm believers of Mercury retrograde and its purchase-related implications. Consider the story of a user who shares a comically unlucky story of their husband:

*“Husband bought a computer during mercury retrograde [...] he's not too into astrology...or wasn't until now. The first computer had a cracked screen [...] so he got a different model for the same price. The second computer has this horrible, very bad, nearly fascist OS [...] He is not happy. He is now a believer.”*

These consumers might not be willing to purchase products in a future retrograde phase thereby deferring their purchase, as discussed before. Overall, negative attitudes towards purchasing in Mercury retrograde are fostered within these consumers, who strengthen their belief that purchases will inevitably go wrong or malfunction during this phase. One user interestingly hints at this being something similar to what is termed as a “self-fulfilling prophecy” in psychology literature:

*“Just buy the car and don't worry about it if you already think the car is gonna break or your gonna pay to much money then these things will happen je don't worry about it.”*

Scholars in the field of psychology describe a self-fulfilling prophecy as a belief or an expectation that influences an individual's behaviour, consequently causing the initial

expectation to come true (Jussim, 1986). For example, if a person holds a particular belief regarding an event, they might choose to act in a way that conforms with the belief. Taken in the context of Mercury retrograde, if an individual expects products purchased during this phase to perform considerably worse, they might be more critical of finding faults or drawbacks of the product.

## **6. STUDY 2 – MERCURY RETROGRADE AND PURCHASE BEHAVIOUR**

### **6.1. Hypotheses Development**

In this study, we explore consumer purchase behaviours during Mercury retrograde phases through a secondary data analysis. Our primary proposition posits that both the volume and value of consumer purchases diminish during Mercury retrograde. As previously discussed, Mercury retrograde carries with it a slew of negative superstitions, particularly concerning trade and commerce. Astrological guidance often discourages consumers from making significant purchase or selling decisions during this time, to sidestep potential misfortune or bad luck. The common belief is that acquisitions made during this phase might malfunction or underperform, a notion supported by our qualitative findings. Individuals swayed by these beliefs, or even those who merely harbour uncertainties, might defer their purchasing decisions during this event. Adhering to these superstitions can alleviate purchase-related anxieties, giving consumers an enhanced feeling of control, and thereby facilitating better coping mechanisms (Kramer and Block, 2008; Wang et al., 2012; Westjohn, Roschk, Magnusson, 2017). Viewing this through the lens of operant conditioning, one might suggest that the discourse surrounding astrology and Mercury retrograde—from astrologers, influencers, peers, or any proponents of such beliefs—conditions consumers to associate Mercury retrograde with undesirable outcomes (Hamerman and Johar, 2013). Consequently, consumers might gravitate towards exerting more control over their purchasing behaviours

during Mercury retrograde, aligning their actions with astrological advice. Making substantial purchases during Mercury retrograde requires a conscious decision. Initially, individuals must actively seek information about the timing of Mercury retrograde phases. Armed with this knowledge, they can then adjust their purchase behaviours accordingly. Given the widespread acceptance of Mercury retrograde's purported negative effects, we anticipate its influence on consumer purchase behaviour to be discernible on a macro scale. Hence, we hypothesize:

*H1a: The total purchase quantity of items during a mercury retrograde phase will be lower than a non-retrograde phase.*

*H1b: The total purchase value of items (in terms of dollars spent) during a mercury retrograde phase will be lower than a non-retrograde phase.*

## **6.2. Data – DMEF**

We conduct our empirical analyses on a secondary dataset (Dataset 15) provided by the Direct Marketing Educational Foundation (DMEF), which is an organization that provides educational resources to students, researchers, and professionals in the fields of direct marketing, advertising, and data-driven marketing. The dataset used in the current study reflects secondary sales data from a specialty multi-channel catalog company which has a material web presence and mails a high volume of catalogs annually to potential customers as its primary marketing vehicle. The dataset encapsulates the purchase history of 100,000 random customers based in the United States spanning from 2004-2012, with 16<sup>th</sup> December 2004 and 17<sup>th</sup> September 2012 being the first and last recorded customer datapoints respectively. The overarching dataset comprises three data subsets: (1) *Order Detail* – the major dataset used for analysis which comprises details of orders placed by customers. This dataset contains 226,129 records reflecting 137,576 orders. (2) *Offer Reference* – Contains 464 records of 464 unique promotional offers, reflecting the marketing activity of the

concerned company. For each offer, data was provided on the time duration for which it was active. (3) *Mail File* – Captures 219 catalog mailing events to customers. Contains a total of 3,184,907 records.

### **6.3. Creating Analysis Dataset**

Upon inspecting the three raw data subsets, we first filtered out the data columns that suited our requirements. We then re-organized the data and created a new dataset that would help us in our analysis. This analysis dataset was organized in a week-wise format, with the first week starting from the first recorded customer datapoint, i.e., 16<sup>th</sup> December, 2004. To illustrate, 16<sup>th</sup>-22<sup>nd</sup> December was operationalized as the first week, 23<sup>rd</sup>-29<sup>th</sup> December was operationalized as the second week, and so on. In total, the analysis dataset comprises 405 weeks and ends with the last recorded customer datapoint, i.e., 17<sup>th</sup> September, 2012. Next, we gathered data on Mercury retrograde dates across all years from 2004-2012. Based on that, each week within the analysis dataset was classified either as – (1) a Mercury retrograde week – if any day of that week fell within a Mercury retrograde phase (treatment week), or (2) a non-retrograde phase – if no days within that week fell within a Mercury retrograde phase (control week). For each week within the analysis data, weekly values were calculated for key variables of interest using the raw dataset. These include weekly number of orders, order lines (i.e., unique number of products ordered), order quantity, order revenue, total promotional offers, and different kinds of promotional offers as per offer classifications (includes ten types – Catalog, Web, Canadian, International, Affiliate, Email, Employee Order, Online Catalog, Print Ad, Other)<sup>7</sup>. We also accounted for whether that particular week had any festival running<sup>8</sup> and also took year fixed effects into account.

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<sup>7</sup> For the offer classifications, no further descriptions are provided.

<sup>8</sup> We take prominent US festivals taken into consideration including New Year's Day, Valentine's Day, St. Patrick's Day, Easter, Mother's Day, Father's Day, Thanksgiving Day, Black Friday, Independence Day, Labor Day, and Christmas.

## 6.4. Key Measures

We term our main explanatory variable as “Retrograde phase”, which denotes Mercury retrograde phases. This variable is operationalized as categorical in nature where weeks (i.e., at least one day of that week) that fall under a Mercury retrograde phase are denoted by “1”, while weeks that do not fall under a Mercury retrograde phase are denoted by “0”. Our key dependent variables of analysis, with their associated measures, include – (1) Total Orders (weekly number of orders placed), (2) Order Items (weekly number of order lines), (3) Quantity Ordered (weekly number of items ordered), and (4) Total Order Amount (weekly revenue from orders).. All revenue values were adjusted for 2004 real prices. A summary of all key variables that made up the analysis dataset are given in Table 2. We use total orders, order items, and quantity ordered as measures for the purchase quantity of items (as part of H1a) and total ordered amount as the measure for the purchase value of items (as part of H1b).

*<Insert Table 2>*

## 6.5. Impact of Mercury Retrograde on Outcome Variables

### 6.5.1. Panel Regression

We begin our analyses with a simple panel fixed-effects regression, which enables us to account for how the dependent variables of interest are impacted by the explanatory variable of interest, i.e., Mercury retrograde phases. We use the following regression equation for our analysis:

$$Y_t = \beta_0 + \beta_1 \text{RetrogradePhase}_t + \beta_2 \text{ActiveOffers}_t + \beta_3 \text{OfferType}_{(t-1)t} + \beta_4 \text{Festival}_t + \text{FixedEffects} + \varepsilon_{it} \quad (1)$$

where  $t = 1, \dots, 405$  (week number across dataset time period of 16<sup>th</sup> December 2004 to 17<sup>th</sup> September 2012),  $Y_t$  refers to the outcome variables of interest (i.e., total orders, order items, quantity ordered, total order amount), Retrograde Phase is the independent variable of interest and takes the value of 1 if a week comprises any day that falls under a Mercury retrograde phase and 0 if the week does not fall under a Mercury retrograde phase, Offer Type is a control variable for total number of offers that are active in a week, Offer Type  $(i-1)_t$  represents the total number of active offers across different offer types ( $i=1, \dots, 10$ ), and Festival represents whether a week has a festival running (takes the value of 1 if yes, and 0 if no). The coefficient of interest is  $\beta_1$  (coefficient of Retrograde Phase) and indicates the whether a Mercury retrograde phase will have a significant impact on the outcome variables of interest.

The results of this regression are presented in Table 3. The results indicate that Mercury retrograde phases have a significant negative effect on all the purchase-related outcome variables of interest – a) total orders (column 1, coefficient = -69.916,  $p < .05$ ), b) order items (column 2, coefficient = -118.148,  $p < .01$ ), c) quantity ordered (column 3, coefficient = -121.742,  $p < .01$ ), and (d) total order amount (column 4, coefficient = -8,375.358,  $p < .05$ ), thus supporting hypotheses H1a, and b.

*<Insert Table 3>*

### 6.5.2. Propensity Score Matching

We employ propensity score matching to address the issue of non-comparability of retrograde and non-retrograde weeks. A matching estimator compares the outcomes of a treatment week and control week, where the two weeks are ‘matched’ based on similarity on observables. The method addresses a key issue of linear regression – the assumption of a functional form for controlling observables. Matching estimators allow for a non-parametric flexible relationship for observables (see e.g., Goldfarb and Tucker, 2014).

Specifically, we use the following variables to compute propensity scores: active number of weekly offers, active number of offers for each offer type, and whether the week is a festival week. We also employ exact matching for the Year and Festival Week. This process provides a matched sample – weeks that are similar in terms of the observable features with equal propensities of being mercury retrograde or not. With this matched sample of weeks, we estimate the impact of mercury retrograde on outcome variables using the panel regression model explained in Equation (1). We argue that, given the similar values in observables in the two sets of weeks (treatment and control weeks), the observed differences may be attributed to mercury retrograde. This enables us to account for the bias introduced by the non-comparability of the two groups and estimate the average effect of mercury retrograde on our outcome variables.

The distribution of propensity scores and the balance of covariates in the treatment and control weeks are presented in Figure 1. Further, the average of the covariates in the matched control and treatment weeks are presented in Table 4. Overall, we find that the distribution of covariates are similar and balanced in the two groups.

*<Insert Table 4 and Figure 1 here>*

We re-estimate Eqn. 1 using the matched sample. Results of the panel fixed-effects regression using the matched sample are presented in Table 6. The results again indicate that Mercury retrograde phases have a significant negative effect on purchase-related dependent variables – a) total orders (column 1, coefficient = -79.029,  $p < .01$ ), b) order items (column 2, coefficient = -139.396,  $p < .01$ ), c) quantity ordered (column 3, coefficient = -147.115,  $p < .01$ ), and (d) total order amount (column 4, coefficient = -9,885.380,  $p < 0.05$ ), thereby supporting hypotheses H1a, and b.

## **8. GENERAL DISCUSSION**

### **8.1 Theoretical Implications**

Our research makes significant strides in deepening the understanding of the relationship between ancient astrological beliefs and modern-day consumer behaviours. By addressing the tangible influence of the Mercury retrograde phenomenon on consumer purchasing patterns, we fill a notable gap in the existing literature where the focus has largely been on superstitions in general (Westjohn, Roschk, and Magnusson, 2017). Our findings add to the psychological foundations of superstitions postulated by Malinowski (1948) and later reinforced in marketing contexts by studies such as Kramer and Block (2008, 2011), Block and Kramer (2009), Hamerman and Johar (2013) and so on. In doing so, we elucidate the pivotal role of superstitions as coping mechanisms that individuals employ to navigate uncertainties in their lives. Building on the theoretical foundations of perceived control and operant conditioning, our research underscores that consumers, when faced with uncertain or risky situations, can rely upon superstitious or astrological beliefs (and behave in accordance with them) as a means to gain control over their environment. This acts as an affirmation of the complex interplay between superstitious behaviours and the human need for perceived control over outcomes. We add empirical support to the above by exploring the purchase-related astrological beliefs associated with Mercury retrograde and how consumers might potentially utilize these beliefs in regulating their behaviour under Mercury retrograde phases. Two studies are conducted in this regard.

The first study qualitatively explores consumer discourse of Reddit users on Mercury retrograde and finds themes that suggest the potential impact of beliefs associated with this event on consumer purchase behaviours, across three stages of the purchase journey. The themes uncovered in this study can also be used to illuminate other contexts to understand how



other astrological or superstitious beliefs can impact purchase behaviours, i.e., if the belief is associated with purchasing or consumer decision-making. Next, we conduct a quantitative analysis (Study 2) on a secondary dataset of order transaction history of US consumers to tease out the effect – i.e., consumer purchases are reduced (both in number and monetary value) while returns are heightened (both in number and monetary value) during retrograde phases. This provides a strong foundation for future work on Mercury retrograde that is aimed at finding support for greater causality between this phenomenon and different consumer behaviours. One such study is proposed by us, where we want to carry out a primary survey-based study using US participants that not only captures their astrological beliefs related to Mercury retrograde, but also their one-year transaction history. The results of this study will allow us to make a stronger causal inference on how Mercury retrograde can affect consumer purchase behaviour. In summary, our research challenges the traditional notion of consumers as purely rational actors, bringing to the fore the intricate nuances of their decision-making patterns. It lays emphasis on the strong influence that negative superstitious beliefs, like those tied to Mercury retrograde, can have on consumer decision-making in purchase scenarios. Our findings offer an enriched understanding of the interplay between superstition and rationality in consumer behaviour, thus enhancing current knowledge of the impact of astrology in marketing contexts.

## **8.2 Practical Implications**

Our research findings outline the importance of Mercury retrograde in shaping consumer purchase behaviour, requiring businesses to rethink their approach towards marketing activities during this astrological period. Firstly, we show provide qualitative support towards how consumer beliefs regarding Mercury retrograde can impact their beliefs, attitudes, and behaviours across the purchase journey. Next, our quantitative analysis in Study 2 demonstrates a tangible decline in both the volume and value of consumer purchases during

Mercury retrograde phases as compared to non-retrograde periods. To counter this downward trend, marketers and businesses should strategically time their sales and promotional activity either just before or immediately after these periods. Offering attractive deals, discounts, or limited-time offers during Mercury retrograde can serve as an effective stimulus that entices consumers to make purchases despite their reservations. This is accentuated even more when businesses acknowledge Mercury retrograde in their marketing communications. By referencing it in advertisements or promotional content, brands can resonate with their audience, showcasing understanding and empathy. Reassuring consumers about product quality and functionality through well-crafted communications (e.g., demonstrations of rigorous product testing, sharing positive customer testimonials, or obtaining endorsements from experts) can go a long-way in reinforcing consumer trust and mitigating anxieties and fears experienced by consumers about making purchases during Mercury retrograde. It might also offer avenues to infuse humour or light-heartedness in marketing content, enhancing brand relatability.

However, the challenges posed by Mercury retrograde aren't just limited to sales. With our research highlighting a surge in product returns during these times, businesses need to be well-prepared. It becomes imperative for firms to have an efficient returns management system in place. Swift, hassle-free return processes can minimize potential customer dissatisfaction. Offering store credits instead of outright refunds could be an astute strategy, nudging customers towards replacement purchases, and thereby retaining sales. Consumer confidence can be further bolstered by introducing special repair and maintenance service guarantees, as well as extending warranties during retrograde phases. By aligning their marketing and operational strategies keeping in mind the nuanced shifts in consumer purchase behaviour during retrograde phases, business can convert a potential challenge into a noteworthy opportunity, thereby ensuring competitive advantage and sustained success.

### **8.3 Limitations and Further Research**

Like most empirical investigations, our research comes with its set of limitations, which in turn offer avenues for future research. While we direct our attention at providing insight into consumer behaviour during Mercury retrograde, our study predominantly focuses on purchase decisions related to trade and commerce, that too for product-related purchases. This leaves open the question of whether these findings generalize to other domains of consumer behaviour, such as purchase of services, service utilization, brand loyalty, or even interpersonal interactions in a marketplace context. Our examination also has a geographical scope that might not give an accurate representation of global consumer behaviour comprehensively. Cultural differences, different astrological traditions, and varying levels of belief in astrology across countries or regions could significantly influence consumer purchase behaviour during Mercury retrograde. Hence, our findings, based on a specific cultural context, might not be directly applicable to markets with different cultural underpinnings. We invite scholars to investigate other culturally produced astrological and superstitious beliefs, and examine whether and how they might impact consumer behaviour. Further research could also delve deeper into the psychological mechanisms that drive these observed behaviours. While our study touched upon the role of control and uncertainty as conceptual lenses, a more granular exploration into the emotional, cognitive, and even neurological processes at play would add richer depth to our understanding. Finally, the evolving nature of marketing in the digital era puts forward new challenges and opportunities. The influence of social media, online influencers, and real-time feedback mechanisms on consumer perceptions during Mercury retrograde remains an exciting frontier to explore.

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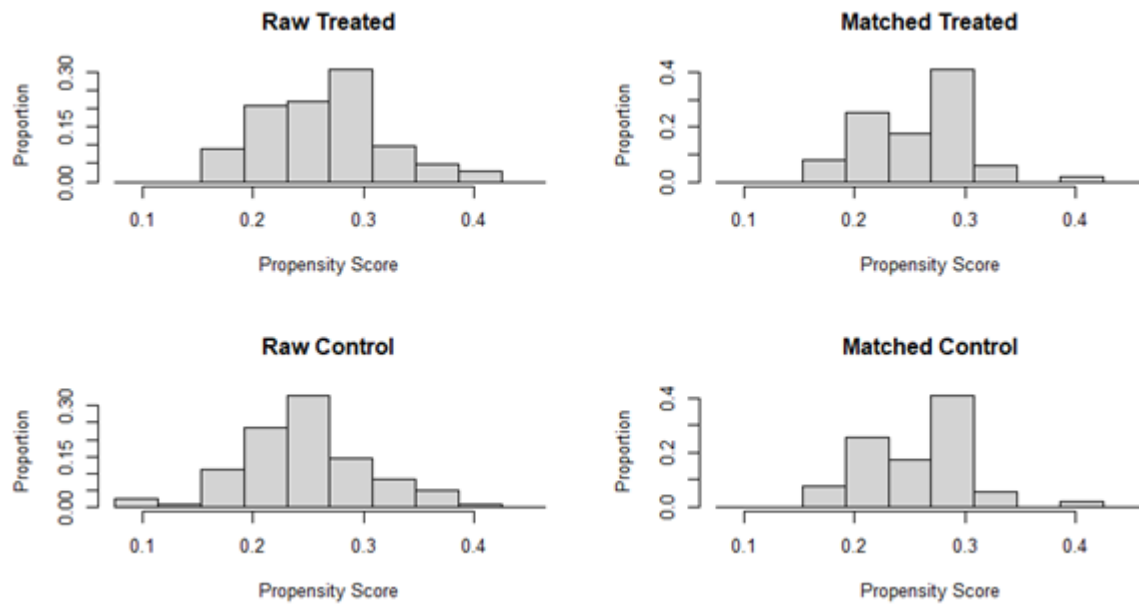
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**Figure 1. Distribution of propensity scores and matched control for treatment and control weeks**



**Table 1. Overview of subreddits used for qualitative analysis.**

<b>Subreddit</b>	<b>Members</b>	<b>Threads*</b>	<b>Comments*</b>	<b>Description</b>
r/AskAstrologers	1,37,000	207	2302	“A community for asking questions about your birth chart or astrology in general.”
r/astrology	6,09,000	216	7153	“Astrology is the study of the correlation between celestial movements and earthly events. r/Astrology is a community for discussing and learning about astrology.”
r/astrologymemes	1,55,000	173	3452	“Sharing astrology memes and open ended/light-hearted astrology discussions.”
r/MercuryRetrograde	680	139	365	“Did you forget to attend that very important meeting? Is communication with colleagues and friends at its worst? Is technology failing you over and over again? Then this could mean Mercury is in retrograde! Post your experiences during Mercury Retrograde and let's get through this together.”
r/witchcraft	4,01,000	88	1244	“r/Witchcraft is a welcoming and inclusive space in which to share knowledge, discuss, ask questions, and further the progression of witchcraft as well as the individual's path. All are welcome, those who practice witchcraft and those who wish to learn.”

\* Represents the number of threads and comments related to the phenomenon of Mercury retrograde that were extracted from each subreddit.

**Table 2. Key variables in the analysis dataset.**

S.No.	Data Column	Description
1	Week	Identifier for week number. Value range: 1-405
2	Start Date	The starting date of a particular week
3	End Date	The ending date of a particular week
4	Retrograde	Whether a week (at least one day) falls under Mercury retrograde. “1” if yes, “0” if no.
6	Total Orders	Weekly number of orders placed
7	Order Items	Weekly number of order lines, i.e., number of unique items ordered
8	Quantity Ordered	Weekly number of total items ordered
9	Total Order Amount	Weekly revenue from orders
10	Offer Classification	The kind of marketing activity, classified in the dataset – Catalog, Web, Canadian, International, Affiliate, Email, Employee Order, Online Catalog, Print Ad, Other.
11	No. of Offers	Weekly number of total active offers
12	Catalog	Weekly number of active Catalog offers
13	Web	Weekly number of active Web offers
14	Canadian	Weekly number of active Canadian offers
15	International	Weekly number of active International offers
16	Affiliate	Weekly number of active Affiliate offers
17	Email	Weekly number of active Email offers
18	Employee Order	Weekly number of active Employee Order offers
19	Online Catalog	Weekly number of active Online Catalog offers
20	Print Ad	Weekly number of active Print Ad offers
21	Other	Weekly number of active Other offers
22	Festival	Whether a particular week has a running festival. “1” if yes, “0” if no.
23	Festival ID	The kind of festival running in a week.

**Table 3. Regression Results: Effect of Retrograde Phase on Orders**

Explanatory variables	Total Orders	Order Items	Quantity Ordered	Total Order Amount
<b>Retrograde phase (1=yes)</b>	<b>-69.916**</b>	<b>-118.148*</b>	<b>-121.742*</b>	<b>-8,375.358**</b>
	<b>(34.516)</b>	<b>(61.225)</b>	<b>(63.474)</b>	<b>(4,103.517)</b>
No. of Offers	-69.878	-135.940	-142.391	-8,638.095
	(53.608)	(95.090)	(98.583)	(6,373.274)
Affiliate	79.210	148.995	160.413	10,069.908
	(59.008)	(104.668)	(108.513)	(7,015.237)
Catalog	163.892***	304.889***	318.023***	19,688.685***
	(53.818)	(95.462)	(98.968)	(6,398.187)
Email	-66.262	-117.115	-121.224	-8,519.102
	(73.141)	(129.736)	(134.502)	(8,695.411)
Employee order	1.797	42.730	73.307	7,820.088
	(223.881)	(397.119)	(411.706)	(26,616.368)
International	-11.431	-2.433	-3.573	-1,681.652
	(91.312)	(161.969)	(167.918)	(10,855.731)
Online catalog	-108.607	-169.034	-179.830	-7,250.904
	(149.477)	(265.142)	(274.881)	(17,770.754)
Other	-408.590**	-662.577**	-675.957**	-53,506.492***
	(167.751)	(297.556)	(308.486)	(19,943.310)
Print ad	100.149*	185.007**	192.616**	12,462.946**
	(52.283)	(92.739)	(96.146)	(6,215.738)
Web	114.954**	210.919**	216.182**	12,834.002*
	(57.017)	(101.137)	(104.852)	(6,778.600)
Is Festival Week (1=yes)	-54.648	-92.530	-96.101	-6,069.019
	(39.278)	(69.671)	(72.230)	(4,669.608)
Year Fixed Effects	Yes	Yes	Yes	Yes
Constant	218.861	399.280	412.660	27,618.662
	(214.096)	(379.764)	(393.713)	(25,453.156)
Observations	405	405	405	405
R-squared	0.330	0.319	0.318	0.338

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5. Average of the covariates in the matched control and treatment weeks.**

	Entire Sample		Matched Sample	
	Treated	Control	Treated	Control
Distance	0.26	0.24	0.25	0.25
No. of Offers	41.00	39.80	38.65	38.80
Affiliate	7.09	7.04	6.61	6.65
Catalog	14.60	14.19	13.96	14.18
Email	1.84	1.85	1.94	1.94
Employee_order	0.80	0.79	0.82	0.82
International	4.29	4.25	4.18	4.14
Online_catalog	1.02	0.99	1.00	1.00
Other	0.18	0.14	0.12	0.12
Print_ad	5.75	5.33	4.63	4.57
Web	4.65	4.52	4.65	4.67
Year	2008.36	2008.33	2008.16	2008.16
Is Festival Week	0.21	0.19	0.10	0.10

**Table 6. Propensity Score Matching Results: Effect of Mercury Retrograde on Orders**

Explanatory Variables	Total Orders	Order Items	Quantity Ordered	Total Order Amount
<b>Retrograde phase (1=yes)</b>	<b>-79.029*</b> <b>(41.926)</b>	<b>-139.396*</b> <b>(76.227)</b>	<b>-147.115*</b> <b>(79.171)</b>	<b>-9,885.380*</b> <b>(5,007.391)</b>
No. of Offers	80.428 (123.231)	143.055 (224.048)	151.873 (232.701)	9,673.511 (14,717.894)
Affiliate	202.598** (101.320)	-370.255** (184.211)	-383.438** (191.325)	-24,753.289** (12,100.940)
Catalog	-4.164 (114.397)	-2.491 (207.987)	-4.146 (216.021)	-488.948 (13,662.866)
Email	333.795** (157.227)	-623.092** (285.857)	-644.964** (296.898)	-40,321.766** (18,778.171)
Employee order	925.055* (471.664)	1,766.783** (857.538)	1,845.531** (890.659)	112,985.165** (56,332.381)
International	309.284* (184.477)	553.709 (335.401)	573.413 (348.355)	34,890.069 (22,032.750)
Online catalog	-	-	-	-
Other	-639.970 (492.136)	-1,146.825 (894.759)	-1,189.153 (929.318)	-83,191.020 (58,777.456)
Print ad	-55.522 (109.406)	-100.397 (198.912)	-107.972 (206.595)	-6,396.004 (13,066.690)
Web	-97.428 (100.732)	-171.981 (183.142)	-179.531 (190.216)	-12,628.747 (12,030.752)
Is Festival Week (1=yes)	-77.966 (71.752)	-148.557 (130.453)	-155.204 (135.491)	-8,342.472 (8,569.550)
Year Fixed Effects	Yes	Yes	Yes	Yes
Constant	-1520.341 (1,666.85)	-2,727.938 (3,030.527)	-2,919.903 (3,147.575)	-165,751.444 (199,077.740)
Observations	120	120	120	120
R-squared	0.308	0.316	0.317	0.310

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1