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An application of behavioural finance in banking: The Discovery Bank case

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Orientation: Behavioural finance research suggests that human biases can cause irrationalities which have a significant impact on decision making. Discovery Bank is an organisation that attempts to apply behavioural finance to improve the financial health of its clients.

Research purpose: This study attempts to determine the extent to which the Discovery Bank business model is grounded in behavioural finance theory.

Motivation for the study: Discovery Bank is the first bank to leverage behavioural insights to improve personal financial decisions.

Research approach/design and method: This study followed an explanatory case study methodology with primary data sources being interviews with key employees, academic research and electronic artefacts. The Discovery Bank business model was evaluated against the behavioural finance theoretical framework to establish the extent to which it conforms to behavioural finance theories.

Main findings: The Discovery Bank business model is grounded in behavioural finance theory to a significant extent, with emphasis on modifying the behaviours that inhibit financial well-being. The bank generally uses incentives rather than nudges as behaviour modification tools.

Practical/managerial implications: Whilst behavioural finance continues to attract substantial attention in finance research, its practical implications for the banking industry and personal finance are largely unexplored. Furthermore, the study contributes to the literature by examining the behavioural finance theoretical framework in the context of the banking and the broader financial services industry.

Contribution/value-add: This research may be of value to practitioners in the financial industry as it explores a unique business model. Researchers on behavioural finance may find value in the practical application of the theoretical framework.

Keywords: behavioural finance; behavioural banking; behaviour modification; personal finance; financial health; financial decisions.

Introduction

Discovery Bank launched in March 2019 along with its core financial product, Vitality Money. Vitality Money is a behavioural change programme that changes its client's financial behaviours with the goal of improving their financial health (Discovery Bank 2018a). Discovery Bank is therefore a prime example of an organisation leveraging behavioural insights to develop financial products that modify human financial behaviour. It is for this reason that Discovery Bank is the world's first and only behavioural bank (Pather & Bedford 2019).

Excessive consumer debt levels and a low propensity to save persists despite the increased financial and social costs of doing so (SARB Quarterly Bulletin 2019). Although more individuals are lifted out of poverty each year, poor financial health continues to be a social problem for South Africa and other developing countries. Whilst there are undoubtedly several socio-economic factors that continue to drive the poor financial health of South Africans, one variable of increasing research is the role behavioural biases on financial decision making (Mudzingiri, Mwamba & Keyser 2018).

Financial health (or financial well-being) is in part the culmination of an individual's financial decisions over time. Choice, furthermore, is largely a function of behavioural patterns which are in part influenced by behavioural biases (Mudzingiri et al. 2018). Understanding financial health as a function of choice enables researchers to design studies that deliberately analyse the impact of behavioural biases on financial decisions and thus identify the behavioural determinants of financial health. The use of behavioural insights in modifying human financial behaviour is of increasing importance not only at the individual level as a means of reducing financial vulnerability (O'Connor et al. 2019) but also at the macro-economic level for companies, policy makers and regulators as a means of improving a country's economic performance (Bruns et al. 2018). Companies specifically are starting to leverage behavioural insights to design products that modify human behaviour to achieve a desired outcome, such as improving the financial health of an individual (Vlaev & Elliott 2014).

This study aims to evaluate the Discovery Bank business model against the behavioural finance theoretical framework to establish the extent to which the framework is applied in a practical context. To this end, the primary research question (RQ) for this study is, 'To what extent is the Discovery Bank business model grounded in behavioural finance theory?' (RQ1). This primary question is broken down into the following sub-questions:

> RQ1.1: How are the concepts of financial health and financial behaviour explored in behavioural finance research?
>
> RQ1.2: What are the behavioural biases that impact financial behaviours?
>
> RQ1.3: What methods of behaviour modification exist to rectify the impact of behavioural biases on financial behaviours?
>
> RQ1.4: Does the Discovery Bank business model align with the behavioural finance framework on financial behaviours, behavioural biases and behaviour modification and if so, to what extent?

Data and methodology

In order to analyse the single unit in this study (Discovery Bank), the researchers adopted an interpretive methodological position with the behavioural finance theoretical framework used to understand the business model of the selected company. Using a descriptive case study, the researchers attempted to discuss pioneering and innovative practices by the selected company (Leedy & Ormrod 2005; Ryan, Skapens & Theobald 2002; Yin 1984). According to Leedy and Ormrod (2005), case study or idiographic research is used to understand a case unit. The case unit is often chosen because they are of interest as they are regarded as pioneers in their field.

Discovery Bank meets this criterion as they are the world's first behavioural bank. Porter, Kramer and Sesia (2014) also used a case study research approach to Discovery Limited. The researchers explain that the company was chosen as it used behavioural economics to innovate in the medical insurance industry.

As an initial step to enhance the trustworthiness of this case study research, the researchers ensured that the RQ was clearly defined and articulated. Considering that case study methodology enables the researchers to answer 'how' and 'why' RQs (Yin 1984), in the context of this research, 'the extent to which,' is an embedded 'how' RQ, 'how is the Discovery Bank business model using behavioural finance theory?'. The 'why' RQ is also encapsulated in this study as the researchers attempt to answer, 'why is there deviation from this behavioural finance theory?' In this manner, the RQs are formulated to extract an explanation of a contemporary circumstance (Yin 1984). Therefore, the case study methodology was deemed appropriate for the given RQ1.

Being the world's first behavioural bank, Discovery Bank is largely incomparable to other behavioural banks. Despite there being various international asset management firms which claim to apply behavioural finance principles in their strategies (Wright, Bannerjee & Boney 2008), the application of behavioural finance principles is a new development in the South African financial sector.

Various sources of data were used to enhance credibility (Baxter & Jack 2008; Patton 1990; Yin 1984). A non-probabilistic, purposive sampling approach was used (Guest, Bunce & Johnson 2006). The researchers required data that explained the business model of Discovery Bank and how behavioural finance principles were utilised in the development of its products. Data were collected between May 2019 and November 2020. Multiple face-to-face interviews were conducted with an employee of Discovery Bank who played a key role in the establishment of the bank and has a thorough knowledge of its business model (Respondent 1, Discovery employee, July 2019). The researchers also relied upon media interviews with members of executive management at Discovery (Gore 2019; Hore 2019). Along with the interviews, data regarding the Discovery Bank business model was collected from electronic artefacts such as annual reports (Discovery Bank 2018b), technical reports (Pather & Bedford 2019) and podcasts (Joffe 2017). In preparation of the face-to-face interviews, the researchers performed a thorough review of existing theories on behavioural finance, the results of which are presented in the literature review section. The unstructured nature of the interviews afforded greater flexibility to explore new issues as they were raised. The technique applied for the analysis required pattern matching against the findings of the literature review in Chapter 2 (Baxter & Jack 2008).

The method used in answering RQ1 is a data source triangulation, which has been identified as one of the four acceptable types of triangulation (Yin 1984). In an iterative process, the data (including the interview data) was gathered and analysed. This was done until no new patterns or themes were observed (Guest et al. 2006). In order to further enhance the procedural reliability in the analysis of the data, the researchers followed the suggestion of Ryan et al. (2002) by creating a database of evidence which was organised systematically in MS® Excel™. The database contained comprehensive notes from the interviews as well as a summary of all other evidence. The involvement of multiple researchers in this project allowed for a review of the evidence and case study findings. This team review also served to minimise the possible influence of a single researcher's bias in interpreting the data.

The rest of this research is structured as follows. The 'Literature review' section contains a review of the relevant behavioural finance theories. 'The Discovery Bank business model' section analyses the bank's business model using multiple data sources. An evaluation of the business model in the context of the behavioural finance theories, follows in 'Analysis and discussion on findings'. The study then concludes, identifying areas for further research.

Literature review

The purpose of this literature review is to evaluate existing literature regarding three areas of behavioural finance within the context of personal finance. The findings of this literature review will be used to evaluate how the Discovery Bank business model is using behavioural finance theory and to what extent (RQ1).

Behavioural finance is largely concerned with the impact of human irrationalities which may result in sub-optimal financial decisions. Research on behavioural finance is characterised by discussions of cognitive and emotional biases with many academics suggesting 'nudges' to minimise the effect of these irrationalities (Thaler & Benartzi 2004; Thaler & Sunstein 2008). The use of 'incentives' is also suggested, depending on their form and how they are designed (Gneezy, Meier & Rey-Biel 2011). Monetary incentives have been shown to reduce behaviours such as unhealthy food consumption and smoking (Voigt 2012; Wall et al. 2006). Similarly, incentives have been proposed to promote financial health by encouraging saving (Engen, Gale & Scholz 1996; Kempson, Mckay & Collard 2005).

Financial health

In a recent attempt at consolidating literature surrounding the concept of financial health, Brüggen et al. (2017) identied that existing literatures define financial health either objectively or subjectively. Objective methods include aspects such as debt level, income level and other methods of financial ratio analysis. Subjective methods are those that measure an individual's own satisfaction with their financial state and therefore include more cognitive, emotional and psychological elements. The authors recommend that future research will adopt a composite definition. This recommendation has been supported in other research that explores that the multi-dimensional nature of financial well-being for individuals (Fiksenbaum, Marjanovic & Greenglass 2017; Joo 2008).

In practice, an accepted measure of financial health is a composite measure developed by the American Consumer Financial Protection Bureau (CFPB). The CFPB uses a questionnaire to rank an individual's financial health on a scale of 0–100, with below 40 being poor financial health and greater than 60 being financially secure (CFPB 2019). The CFPB defines and measures financial health in four domains, with two objective and two subjective measures, namely:

- Having control over day-to-day, month-to-month finances
- Having the capacity to absorb financial shock
- Being on track with financial goals
- Having financial freedom to make choices that allow you to enjoy your life.

The researcher accepts a composite definition of financial health as recommended by Brüggen et al. (2017) and specifically the definition as per the CFPB as a comparison in the 'Literature review' section.

Financial behaviours

Financial behaviours are described as a set of observable financial activities by economic agents (Mudzingiri et al. 2018). These everyday financial behaviours influence an individual's financial health (Dew & Xiao 2011).

For example, higher household credit consumption increases the risk of loan default and reduces the likelihood of establishing retirement savings accounts (Dew & Xiao 2011).

In 2011, researchers Jeffery Dew and Jing Jian Xiao developed and validated the Financial Management Behaviour Scale (FMBS). The FMBS is a comprehensive measure of financial behaviours across multiple domains of financial behaviour, and is psychometrically validated (Dew & Xiao 2011). The FMBS categorises various financial activities into the following four financial behaviour factors:

- Savings and investment behaviours
- Insurance behaviour
- Cash management
- Credit management

This definition of financial behaviours is used in practice for the National Financial Capability Study (NFCS) for collecting large sets of financial data on individuals in America as they capture both short-term and long-term financial behaviours (Hilgert, Hogarth & Beverly 2003, as cited in Wagner & Walstad 2019). The researcher accepts the FMBS as the definition of financial behaviour as a comparison for this case study.

The behavioural determinants of financial health

The purpose of this section is to review existing literature that provides empirical evidence of the effect of behavioural biases on the financial health of individuals.

Behavioural biases are our irrational behaviours that are neither random nor senseless, but rather systematic and predictable (Ariely 2008). There are two types of behavioural biases, cognitive biases and emotional biases. Emotional biases are systematic deviations from rationality as a result of impulse or intuition in decision-making. Cognitive biases, unlike emotional biases, are errors in reasoning. This distinction becomes important when determining whether a certain financial behaviour should undergo behavioural modification (Pompian 2011).

The process followed for analysing each bias was to first define the bias, then explain how it is measured, then identify which financial behaviours it impacts and finally, the result on financial health. This process is illustrated in Figure 1.

The biases reviewed in this section were chosen because of their prominence in three main publications that may be regarded as seminal in the behavioural finance field: 'Judgement under uncertainty: Heuristics and biases' (Tversky & Kahneman 1974), 'Predictably Irrational' (Ariely 2008), 'Nudge' (Thaler, Gintis & Sunstein 2008) and 'Behavioural Finance and Wealth Management' (Pompian 2011).

Emotional biases

Self-control bias

The self-control bias is the tendency of humans to consume today at the expense of saving for tomorrow (Pompian 2011; Thaler & Shefrin 1981). Self-control influences human financial behaviour as well as their subjective financial health. Individuals with higher levels of self-control are more likely to save regularly (being a positive impact on savings behaviour) and thus have greater financial resilience, sufficient income for retirement and lower levels of debt (Gathergood 2012). Therefore, self-control impacts multiple financial behaviours (Pompian 2011).

Overconfidence bias

Overconfidence is a general term used to describe different measures of inflated views of the self (Logg, Haran & Moore 2018). Overconfidence directly impacts people's savings, investments and insurance behaviours (Barberis & Thaler 2003; Pompian 2011).

Loss aversion bias

Loss aversion, a development of the prospect theory (Kahneman & Tversky 1979; Tversky & Kahneman 1991) explains the observation that individuals exhibit a stronger impulse to avoid losses over acquiring equal gains (Pompian 2011). Thaler and Benartzi (2004) demonstrated the application of loss aversion. They found that if employees' saving rates were automatically increased as their salaries increased, they did not feel as if they were making sacrifices of their disposable income.

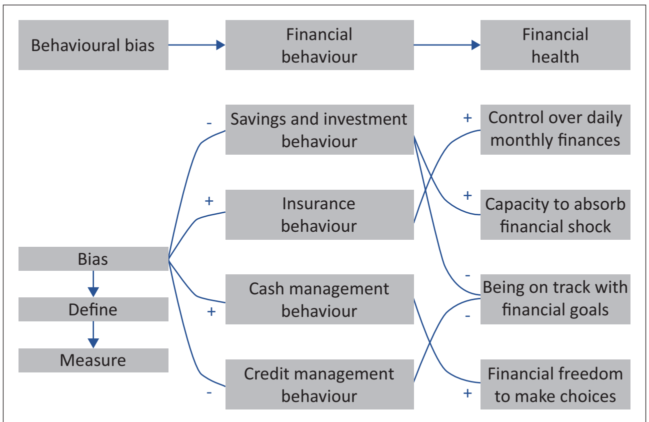

FIGURE 1: The relationship between behavioural biases, financial behaviours and financial health.

Cognitive biases

Herding effect

The herding effect is the phenomenon of individuals wanting to conform and thus mimic the behaviour of others (Thaler et al. 2008). In the context of personal finance, it is manifested as 'the habit of people to imitate the financial behaviour of a majority' (Miller 2019). Therefore, if an individual operates in an environment that exhibits poor financial behaviour, the likelihood of that individual also having poor financial behaviours increases (Vlaev & Elliott 2014). It therefore impacts multiple financial behaviours, most notably savings and investments behaviours (Vlaev & Elliott 2014).

Mental accounting

Mental accounting describes the various cognitive processes that facilitate individuals in organising and managing their money. (Thaler 1999). A negative consequence of this bias is that individuals will allocate funds to savings whilst still using a credit facility for daily expenditure, instead of first paying off the credit facility to take advantage of the clear arbitrage opportunity (Kahneman 2013). It therefore impacts multiple financial behaviours (Pompian 2011).

Behaviour modification

According to the theory of planned behaviour, an individual's perception of the ease with which an outcome may be achieved influences their willingness to perform the behaviour (Azjen 2011). Thaler and Sunstein (2008) illustrate this by proving that savings levels increase when individuals are automatically enrolled in savings programmes.

The role of behaviour modification therefore, specifically with regards to financial behaviour, is to override the influence of behavioural biases on financial decisions to improve the consumer's decision-making process and achieve the desired outcome of good financial health. The type of behavioural bias, cognitive or emotional, is an important distinction for the purposes of behavioural modification. Either the behavioural modification technique applied is direct (such as improving financial literacy or providing incentives) or indirect (such as nudges, defaults or incentives). Direct methods of behavioural modification tend to be appropriate for rectifying cognitive biases whilst indirect methods are used for overriding emotional biases (Pompian 2011).

Financial literacy

The first method of direct behaviour modification evaluated in this research is financial literacy. A contributing factor to bounded rationality as outlined by Simon (1955) is the lack of awareness amongst decision makers with narrow focus on the decision at hand, as opposed to a holistic view point (Kahneman 2013). It is for this reason that improving financial literacy is key to reducing the impact of cognitive biases on decision making (Pompian 2011; Wagner & Walstad 2019).

Financial literacy is predominantly measured in three domains: numeracy, knowledge of inflation and knowledge of risk diversification (Wagner & Walstad 2019). Increased levels of financial literacy reduces cognitive biases and therefore positively impacts general financial behaviour (Özen & Ersoy 2019). However, financial literacy appears to be more effective in improving financial behaviours in developing countries rather than developed ones (Mudzingiri et al. 2018). For example, Cole and Shastry (2009) demonstrated that financial education had no impact on individual savings and investment behaviours in the United States. This was because of the already high levels of financial literacy amongst the general population relative to the rest of the developing world. Whereas within South Africa, financial literacy proves to play a greater role in improving the financial behaviours of individuals because of an apparent undervaluing of its importance amongst lower income households (Mudzingiri et al. 2018; Nanziri & Olckers 2019). Therefore, the role of financial literacy is important to improving the financial behaviours of South Africans and thus their financial health (Mudzingiri et al. 2018).

Incentives

Incentives are a direct method of behaviour modification, which are intended to encourage desirable behaviour (Sherman 1970). They therefore aim to alter the individual's conscious decision making (Bruns et al. 2018).

Whilst it may seem intuitive that higher incentives will lead to better behaviour, incentives have been applied to many areas of decision making with varying results. Gneezy et al. (2011) found that excessive rewards offered to employees may not necessarily result in increased performance depending on the nature of the tasks for which they are incentivised. The need for an incentive may indicate that a task is difficult, undesirable or that the individual is not naturally suited to it (Gneezy et al. 2011).

Holt and Laury (2005) show that increasing incentives tend to encourage greater loss aversion as individuals become increasingly weary of discrepant behaviours. Shin and Ariely (2004) show the close relationship between incentives to keep options viable and loss aversion. Schwartz et al. (2014) provided further evidence when they found that consumers changed their behaviour when they were faced with the risk of losing their incentives for healthy food purchases.

Nudges

Nudges, a notion developed by Thaler et al. (2008), are tools that leverage behavioural insights to influence individual behaviour (Thaler et al. 2008). Furthermore, these tools must not limit the options nor significantly change the economic incentives of the individual (Bruns et al. 2018). Unlike incentives, nudges are indirect methods of behaviour modification. Because of this, nudges are also used as a form of soft regulation or alternative to economic intervention. For example, the Save More Tomorrow™ programme, which was a default on some employment contracts, modifies employees savings behaviour by making employers automatically save a portion of any future pay rise on behalf of the employees (Thaler & Benartzi 2004). However, setting it up as a default option, rather than an opt-in term, created a lack of transparency between employers and employees. It is for these reasons that nudges are criticised as being potentially unethical. They are therefore effective, yet potentially complex to implement in practice (Bruns et al. 2018).

Behavioural finance in other financial institutions

As dicussed in the 'Data and methodology' section, the Discovery behavioural bank is largely incomparable to other banks as it is a pioneer in its field. In an attempt to compare the bank's application of behavioural finance theories, the researchers considered other international financial institutions, including asset management firms.

Prior research on behavioural funds appears to be dominated by data on funds in the United States of America, where these funds are more common compared to other countries. This finding emphasises the pioneering nature of Discovery Bank as it applies behavioural finance in the South African banking sector.

Interestingly, many asset management firms which use behavioural finance principles have founders or principals who are also key contributors to the academic research on the topic. Discovery Bank has created its products informed by a similar approach to a research by Dan Ariely, a professor of psychology (Discovery Bank 2018a).

Furthermore, Discovery Bank's application of behavioural finance principles appears to be less focused on arbitrage opportunities as a result of irrationality amongst market participants. Its focus is on the improvement of personal financial well-being of its customers by minimising their financially undesirable behaviours.

This section used existing literature to define the key terms of financial health and financial behaviour, identifying the behavioural determinants of financial health and methods of financial behaviour modification. The results of this section will be compared to the Discovery Bank business model to identify areas where the business model aligns, contradicts or is missing from behavioural finance theory.

The Discovery Bank business model

This section explains the business model of Discovery Bank in the context of the behavioural finance theoretical framework.

Background on Discovery Bank

Discovery Limited is a South African company listed on the Johannesburg Stock Exchange (JSE Ltd). It is an organisation that leverages behavioural insights to modify their clients' behaviours to achieve a desired outcome (Discovery Bank 2018a). The bank has used behavioural economics to innovate in the medical insurance industry (Porter, Kramer & Sesia 2014) with the Discovery Vitality model being pivotal to the innovation. The model, which is the world's leading science-based behavioural-change programme (Discovery Bank 2018b) has seen success in improving their clients' decisions so that they live healthier and drive safer (Porter et al. 2014). In March 2019, Discovery Limited officially launched a retail banking subsidiary called Discovery Bank. The bank is built on the Discovery Vitality behavioural model with the aim of improving their client's financial health through behavioural change (Gore 2019). To this end, it combines behavioural economics and actuarial science (Hore 2019).

The following extract from the Discovery website outlines the vision of Discovery Bank (2018a):

> Discovery's model of shared-value banking encourages clients to improve their financial health, which helps them create wealth over the long term. Financially resilient clients contribute to a healthier society in general, one that has more disposable savings and wealth, with far less reliance on the state. Discovery Bank also grows with more clients and lower risks. What's good for our clients, is good for society, and is good for us. (n.p.).

From this statement, it is evident that Discovery Bank aims to leverage both shared value and behavioural sciences to solve a social problem and create value for shareholders in the process. Michael Porter, as cited in Hore (2019), acknowledges that Discovery's 'shared value' model creates value for clients as well as the bank and therefore for society as a whole.

Analysis and discussion on findings

The vision of Discovery Bank to enable its clients to 'bank healthier' is achieved through its Vitality Money programme (Discovery Bank 2018b; Hore 2019). Therefore, Vitality Money is at the core of the Discovery Bank business model. The programme utilises the concepts of financial behaviour and financial health. It further utilises behavioural modification techniques. An important data source for performing this analysis was an interview of a key employee at Discovery Bank (Respondent 1, Discovery employee, July 2019) who is involved in the design and implementation of the Vitality Money programme. Furthermore, media interviews, electronic artefacts such as podcasts and reports were used as additional data sources.

Financial health

Discovery Bank aims to improve its clients' financial health. As such, the first step was to understand how financial health is defined by Discovery Bank. According to the interviewee:

> '[*A*]n individual is financially well if, now, and in the future, they are resilient to financial shocks, feel in control of their day-to-day finances, on track to meet their financial goals and [*they*] have the freedom to make choices.' (Respondent 1, Discovery employee, July 2019)

This aligns with the definition per the CFPB's 2017 report as well as research on financial behaviour by Fiksenbaum et al. (2017) as identified in the literature review.

However, the Vitality Money programme is structured to primarily deliver on one component of the definition, which is being resilient to financial shock, according to the interviewee. This is because Discovery Bank views the remaining three components, feeling in control, being on track and having freedom to make choices as being dependent on an individual's financial resilience. Furthermore, financial resilience is an objective domain of financial health and is therefore easier to measure and interpret, and thus commercialise (Respondent 1, Discovery employee, July 2019).

This idea of the interdependence of components of financial health is not thoroughly explored in literature.

Therefore, this approach by Discovery Bank demonstrates how the definition of financial health per the CFPB is potentially dynamic in practice, and that the components are in fact dependent on each other.

Financial behaviours

Discovery Bank claims to change five financial behaviours: spending less than you earn, saving regularly, insuring for adverse events, paying off your property and investing for the long-term (Discovery Bank 2018b).

These behaviours were selected after analysis of very large amounts of client data. This use of data science ensures that the bank focuses their efforts on specific behaviours that require modification for improved financial health (Hore 2019).

Spending less than one earns is a financial activity under Factor 3 of the FMBS. Saving regularly is Factor 1 of the FMBS. Insuring for adverse events falls under Factor 2 of the FMBS. Paying off mortgage loans falls under Factor 4 of the FMBS whilst investing for the long-term falls under Factor 1 of the FMBS. From this analysis, it appears that Discovery Bank is using a narrower definition of financial health than that used by the FMBS. Furthermore, the order of the behaviours is also important to Discovery Bank as according to the interviewee:

> 'The five financial behaviours that we outline are in order of impact. Obviously, all of them are crucial, but behaviours such as [*saving for*] retirement and paying off property come after your debt repayments with insurance ranked between these two factors' (Respondent 1, Discovery employee, July 2019)

Therefore, according to the Vitality Money programme, spending less than you earn is the most crucial financial behaviour to be improved. The reason being that:

> 'The ultimate motivation is around the outcome [*of being financially resilient*] because that's what we can measure objectively for people. The decision that we focus on is ensuring that people don't buy an unnecessary item that is going to make them spend more than they earn, because that's the core decision that is incorrect.' (Respondent 1, Discovery employee, July 2019)

Behavioural biases

The approach that Discovery Bank has taken in reducing the impact of behavioural biases on their clients' personal finance decisions is to address a financial behaviour rather than a specific behavioural bias. According to the interviewee, there are multiple behavioural biases that impact one's financial behaviour, and so by addressing a financial behaviour successfully, they are by default overriding multiple behavioural biases. This reasoning is corroborated by the literature review on the behavioural determinants of financial health that demonstrated how behavioural biases impact multiple financial behaviours (Barberis & Thaler 2003; Thaler & Sunstein 2008).

However, self-control and loss aversion are specifically targeted by Discovery Bank. For example, the Vitality Money programme may have a monthly goal of 20 card swipes for the client. If the client utilises savings in order to attain the swipes then all prior swipes are reset to zero. This makes the client spend more reasonably at the end of the month for fear of losing their swipes and not reaching the monthly goal, according to the interviewee. This use is consistent with behavioural finance research on self-control and loss aversion (Ariely 2008; Pompian 2011; Tversky & Kahneman 1991).

Behaviour modification

The Discovery Bank business model acknowledges that financial health is a function of the level of income as well as the manner in which it is spent and/or invested. According to the bank, financial awareness and education are critical for good financial behaviour (Discovery Bank 2018b). Discovery Bank increases their client's financial awareness through the use of comparisons. For example, once an individual completes their registration with the bank, a comprehensive overview of the client's financial situation is generated and a comparison is made to the rest of South Africans using various information providers such as credit bureaus, according to the interviewee.

This type of personal financial reporting is consistent with literature emphasising the importance of financial literacy and awareness in South Africa (Nanziri & Olckers 2019). Therefore, Discovery Bank plays a crucial role in improving the financial literacy of its customers (Pather & Bedford 2019).

Furthermore, the provision of this type of information is suggested by Thaler and Sunstein (2008) as it tangibly illustrates how investing translates to financial wellbeing.

The Vitality Money programme uses rewards and incentives to motivate behavioural change. There are three main incentives used: dynamic interest rates on savings and borrowings, dynamic discounts on certain purchases and Vitality active rewards, such as getting a new iPhone for meeting weekly financial goals (Discovery Bank 2018b). According to Hore (2019), these incentives are used because long-term goals require 'nudges' in the short term. The Vitality Money programme is built using the Vitality model which is an incentives-based programme and the current data collected by Discovery is through the use of incentives. Discovery's use of incentives in its banking product range appears to have been expected before its launch (Joffe 2017) as this approach aligns to the broader group's business model. Whilst the nature of the Vitality Money programme may lend itself to the use of incentives rather than nudges as behaviour modification tools, it is evident that the senior management of Discovery acknowledge the usefulness of 'nudges' in specific contexts. The bank is cognisant of the potential for 'nudges' to be viewed as 'manipulations' (Wilkinson 2013) because of the perceived intrusions on autonomy. Furthermore, nudges may not always be practical to implement (Respondent 1, Discovery employee, July 2019).

In addition to the incentives expounded above, the Vitality Money programme offers a budgeting function to address the financial behaviour of spending less than you earn and encourages the client to use and remain within budget.

An explanation as to why these deviations exist between the Discovery Bank business model and behavioural finance theory is that

> 'Discovery uses its in-house model that it has developed over the past 20 years. Discovery has tried various behavioural modification techniques and analysed them in terms of commercial viability and practicality of implementation.' (Respondent 1, Discovery employee, July 2019)

It is therefore apparent that Discovery Bank will follow research literature to the extent that it remains commercially viable. It also demonstrates how behavioural change programmes that potentially work in an academic context may present practical challenges in their implementation.

The researchers noted that the views of Discovery's employees were aligned with regards to how the company has used behavioural finance theories in its business model. There was consensus that Discovery Bank's products and business model are data-based. They aim to change behaviours using incentives (Gore 2019; Hore 2019; Respondent 1, Discovery employee, July 2019; Discovery Bank 2018a, 2018b). This provided the initial indication that the company's business model and vision have been well-communicated and understood amongst its key employees.

Conclusion

The purpose of this research was to determine the extent to which the Discovery Bank business model is grounded in behavioural finance theory.

RQ1.1 and RQ1.4 were answered with both the Discovery Bank business model and behavioural finance theory sharing near-identical definitions of financial health and financial behaviours, with valid reasons for any deviations thereof. Discovery Bank uses a composite definition of financial health. However, the business model narrowly focuses on financial resilience. This is because of it being an objective measure of financial health and thus more practical to implement and commercialise.

Further, RQ1.2 and RQ1.4 were answered with there being both emotional and cognitive behavioural biases impacting financial health, and Discovery Bank focusing on modifying financial behaviours rather than individual behavioural biases, with the exception of self-control and loss aversion. Discovery Bank uses the FMBS definition of financial behaviours. However, Discovery Bank ranks financial behaviours by order of impact on financial health, with the highest ranked financial behaviour being spending less than you earn.

Finally, RQ1.3 and RQ1.4 were answered with both the Discovery Bank business model and behavioural finance theory using financial literacy and incentives as methods of behaviour modification. Whilst Discovery Bank does not use nudges to a large extent; rather, it opts to offer incentives extensively as a method of behaviour modification. This is because of Vitality Money being built on the Vitality model which is largely an incentive-based programme.

Whilst the use of incentives and nudges are not mutually exclusive, Discovery Bank does not make extensive use of nudges as a form of behaviour modification primarily because of the potential complexities in implementation, according to the interviewee. The behavioural finance research community is divided on whether nudges or incentives are the best behaviour modification tools. Evidence that supports the use of incentives shows that they may be superior to nudges where habits are deeply ingrained (Griffith, Von Hinke Kessler Scholder & Smith 2014). Whilst research on the successful implementation of nudges has attracted awards and research focus, Loewenstein and Chater (2017) highlight the limitations of nudges in public policy where they are regarded as having minimal impact. Research on the effectiveness of incentives provides evidence that suggests that incentives may not modify complex behaviours as they are suited to short-term goals (Kavanagh et al. 2011).

Discovery Bank utilises financial literacy as a means of improving the financial behaviours of its clients. From the literature, it is clear that this may prove effective within a South African context but may not be as effective in more developed economies.

The researchers conclude that the Discovery Bank business model is grounded in behavioural finance theory to a significant extent, with valid explanations for any identified deviations from behavioural finance theory. This research may be of value to practitioners in the financial industry as it explores a unique business model in the financial services industry. Researchers on behavioural finance may find value in the practical application of the theoretical framework.

Areas for further research

This research was limited to two definitions: five behavioural biases and three behavioural modification techniques. It therefore forms a basis for further research which extends these elements for a more comprehensive case study of Discovery Bank. The descriptive nature of this research as well as the innovative use of behavioural finance by the case unit enables various possible extensions for further research.

Because of the very recent launch of Discovery Bank, an evaluation of its financial results compared to other banks may provide empirical evidence of the success of the behavioural business model. In addition, a case study of Discovery Bank after the organisation has had time to monitor the effectiveness of its Vitality Money programme may indicate whether the approach of taking a narrow focus of financial health and financial behaviours is effective in improving the overall financial health of individuals.

The approach of ranking factors of financial well-being is not thoroughly explored in literature on financial behaviours, rather financial behaviours are considered to have a homogenous impact on financial health. A possible implication for further research is to analyse each factor of financial behaviour and its relationship with each component of financial health to better understand the potential dynamic relationship between the two.

Discovery Bank has removed investment behaviours from its Vitality Money programme (Respondent 1, Discovery employee, July 2019), which is one of the most widely studied areas in behavioural finance. This is in part because of Discovery Bank being a retail bank and not an investment bank. The implication for further research is to identify potential differences in the emphasis on certain financial behaviours between retail banks and investment banks.

This research showed that the bank's preference for incentives rather than nudges. This finding may initiate further research on the type of behaviour modification tool that is most suitable in specific contexts such as banking or emerging markets. Expanding on a contextual contribution, the implications of behavioural finance in South Africa and other emerging market economies are largely unexplored and present possible contributions to the literature.

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Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this research article.

Authors' contributions

L.H. conducted interviews for the study and compiled an initial version of the research, based on the topic suggested by A.S. A.S. included further supplementary data sources. Y.S. reviewed the research and provided amendments to the methodology and literature review.

Ethical considerations

Ethical approval to conduct the study was obtained from the Faculty of Commerce, Law and Management, University of the Witwatersrand (ethics clearance number CACCN/1191).

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Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

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