

## All at once or one at a time – the effect of simultaneous decision-making on choice diversification in finance

How we make our choices impacts our decisions – whether it's one choice at a time or many choices at once. When we make many choices in a go, we tend to seek more variety in our choices. But what happens when money is involved? Here, our team tests if our behaviour changes in a financial context, as part of their contribution to [The Behavioural Economics Guide 2019](#)



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Financial decisions are everyday practice. We frequently spend, save, borrow and invest money. And these decisions range from time-consuming analyses to habitual, unconscious behaviours.

There are many factors that can influence financial decisions, such as making one choice at a time - sequential decisions, or many choices in one go - simultaneous decisions. Simultaneous differs from sequential choice as it requires us to predict our future preferences across varying time

horizons while making multiple decisions at once. As a consequence, simultaneous decisions have been found to increase choice diversification outside of the financial context whereas sequential decisions result in more consistent choice selections (Simonson, 1990).

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*It is important to understand how this type of choice presentation steers financial decisions*

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However, within a financial context, it is less clear whether simultaneous (vs. sequential) decisions leads to more variety-seeking. While variety can be desirable in certain financial contexts, it is less so in others. For example, diversification of investment assets can spread risk, whereas consistency in saving or loan repayments can be helpful. Financial service providers are often able to design the choice context, determining whether consumers need to make sequential or simultaneous decisions. Hence it is important to understand how this type of choice presentation steers financial decisions.

## Theoretical background

Diversification as a consequence of decision presentation has received considerable attention from consumer researchers. They have consistently found that people who make multiple decisions at once for future separated consumption diversify more, compared to people making decisions one after another (e.g. Simonson, 1990; Read & Loewenstein, 1995; Read et al., 2001). However, researchers are less like-minded about the reasons for diversification in simultaneous (vs. sequential) choice. Whereas Simonson (1990) argues that this difference is due to uncertainty avoidance (i.e. not knowing what our future preferences will be) and consequently risk aversion, others (Read & Loewenstein, 1995) have explained it through time contraction (i.e. the tendency to compress time intervals) and choice bracketing (i.e. the tendency to treat choices that are framed together differently from those that are framed apart).

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*Financial decisions can be very different from those in the consumption domain*

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Although previous research reveals that variety-seeking can be stimulated by offering all choices at once (i.e. simultaneous choice), findings might depend on the decision and consumption context. For example, Fox, Ratner & Lieb (2005) find that choice categorisation leads to increased variety-seeking, and Galak, Kruger & Loewenstein (2011) show that a low rate of consumption increases people's variety-seeking in simultaneous choice. While simultaneous and sequential decision-making have been compared mainly within the food consumption context (e.g. yoghurts or chocolate bars, Simonson, 1990; Read & Loewenstein, 1995) and entertainment contexts (i.e. movies or lotteries, Loewenstein, 2001), we question whether similar effects hold for decisions made in the financial context. Only a few have studied diversification as a result of decision strategy within such a context (e.g. Bernartzi & Thaler, 2001), but these studies involved low frequent decisions. Investigating the role of simultaneous choice in everyday financial decisions would be more comparable to the food choices in the initial papers mentioned. But still financial

decisions can be very different from those in the consumption domain.

## Presence of value

Financial decisions often involve quantitative information and monetary amounts. And the inclusion of numerical values can elicit changes in our behaviour (Vohs, Mead & Goode, 2008). A money-related context influences whether we approach decisions with a prevention or promotion focus (Tong, Zheng & Zhao, 2013). In other words, it affects whether we look for safety and reduced losses or advancements and gains (Higgins, 1997). Research has revealed that, especially in a spending context, people deciding about money become prevention-focused (Tong et al., 2013). They opt for the safe option and stick to the status-quo (Chernev, 2004). This may mean that when they make multiple simultaneous decisions for future separated consumption, they stick to what was previously selected. Thus, in a concrete financial context, we anticipate that simultaneous choice leads to little diversification and the difference in variety-seeking between sequential and simultaneous decision-making may not hold.

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Nonetheless, financial decisions are not always phrased in monetary terms. If presented in terms of personal goals (like the pursuit of ideals and aspirations), the focus of the financial decision may move away from numerical values towards a non-monetary outcome, activating a promotion focus (Zhou & Pham, 2004). Here, people are more risk-seeking and prefer exploration (Pham & Avnet, 2004). Therefore, we expect that moving away from monetary towards goal-oriented decisions will activate a promotion focus, translating to reduced risk aversion and increased variety-seeking in simultaneous decision-making.

## Goal duration

Within the financial context, goals can be short- or long-term, also possibly influencing decision-making. When the achievement of the goal is far in the future, it may feel less urgent (Mitchell et al., 2008; Ballard, Vancouver & Neal, 2018), resulting in more risk-seeking behaviour (Mishra & Lalumière, 2010). The opposite holds when goals are relatively short-term (Mitchell et al., 2008) and choosing between them feels like a trade-off (Dhar & Simonson, 1999). Consequently, it could be anticipated that the time horizon connected to the decision's goal will impact people's variety-seeking during simultaneous choice. Short-term goals may enhance the variety-seeking in simultaneous choice, whereas long-term goals may reduce it.

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*The time horizon connected to the decision's goal will impact people's choice*

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Therefore, in the current research we test the presence of variety-seeking in simultaneous financial decisions and assess whether the framing of choice as (non-)monetary and/or the decision time

horizon has an impact. See Table 1 for the specific hypotheses.

**Table one: Hypotheses**

Hypothesis 1	Variety seeking does not differ between simultaneous and sequential choice in financial decisions that involve monetary values.
Hypothesis 2	Variety seeking will be higher for simultaneous choice than for sequential choice in financial decisions that are focused on non-monetary financial goals
Hypothesis 3	Time horizons will impact the variety seeking in simultaneous rather than sequential choice. Variety-seeking for short-term goals will be higher than for long-term goals in simultaneous choice.

## Study

To test the impact of simultaneous (vs. sequential) choice on the level of diversification in financial decisions, a 2 (Choice presentation: simultaneous vs. sequential) × 2 (Goal time horizon: short-term goals vs. long-term goals) between subjects scenario study was conducted among 310 American adults (Mage = 36.78, SDage = 12.33, 51.6% male) on Amazon Mechanical Turk. Participants were introduced to a new hypothetical feature of their bank app that rounds up purchases and transfers money into their savings account. Participants were told that unique to this feature was the possibility to alter the round-up amount (\$0.10, \$0.50 or \$1.00) and vary the saving goal per week. An example explaining the new feature was included.

First, participants had to name either four 6-month goals (short-term goals conditions), or four 10-year goals (long-term goals conditions). Second, participants needed to set-up the new feature. Depending on the assigned condition, participants were asked to indicate one round-up amount (\$0.10, \$0.50 or \$1.00) and one goal the round-up amount would contribute to, either for the upcoming four weeks at the same time (simultaneous choice conditions) or for each week separately (sequential choice conditions) [1].

Diversification was measured by both the number of different round-up amounts and goals selected across the four weeks. Amount diversification ranged from 0 (same amount was selected each week) to 2 (all different amounts were chosen across the four weeks) and goal diversification ranged from 0 (same goal was selected each week) to 3 (all different goals were selected across the four weeks).

[1] This manipulation of simultaneous and sequential choice was similar to Simonson's (1990) Study 1.

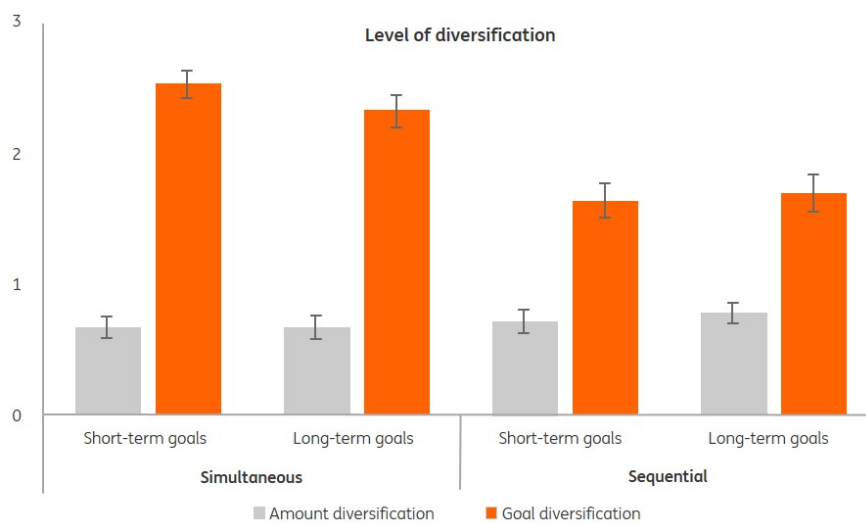
## Results

A two-way ANOVA of choice presentation and goal time horizon on both the level of round-up amount and goal diversification confirmed part of our hypotheses (H1 & H2). The level of diversification across conditions depended on the type of choice, but the time horizon of the goal had no influence.

For the diversification in round-up amount the choice presentation did not have a significant effect ( $F(1, 306) = 0.829, p = .363$ ). Neither was there a significant effect of the goal time horizon ( $F(1, 306) = 0.150, p = .699$ ) or an interaction effect ( $F(1, 306) = 0.188, p = .665$ ).

For goal diversification, however, the choice presentation did have an influence ( $F(1, 306) = 36.311, p < .001$ ). In line with previous literature, participants in the simultaneous choice conditions diversified their goal decisions more (i.e. selected a larger number of different goals to save for) ( $M = 2.44, SD = 1.05$ ) than participants in the sequential choice conditions ( $M = 1.67, SD = 1.20$ , see Figure 1). Again there was no significant effect of the goal time horizon ( $F(1, 306) = .317, p = .507$ ) or an interaction effect ( $F(1, 306) = 1.328, p = .307$ ).

**Figure 1: Level of diversification in round-up amount and goal across conditions**



Note: For amount diversification, all conditions did not significantly differ ( $t$ 's (306)  $.343$ ). For goal diversification all conditions differ significantly ( $t$ 's (306)  $> 3.480, p$ 's  $1.151, p = .250$ ) and the sequential short and long term goals conditions ( $t$  (306)  $> 0.317, p = .752$ ). Error bars represent  $\pm 1$  standard error.

## Discussion

It is essential for financial institutions to understand the impact of how they design decision environments as selecting more variety within the financial context is not always in the best interests of consumers. In this research, we explore the extent to which the decision context (simultaneous or sequential) can trigger variety selection.

We find that when the choice to automatically round up purchases to increase savings is presented as simultaneous, people are more variety-seeking, compared to when the choice is presented as sequential. However, this only occurs when the decision is framed in non-monetary terms (i.e. goal attainment). People save for a larger number of different goals when making simultaneous choices. Interestingly, variety-seeking does not appear to differ between simultaneous and sequential choice for monetary decisions (i.e. round-up amounts). The introduction of different time horizons also doesn't prompt differences between those making simultaneous choices, or those making sequential choices.

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Our findings are a product of the decision context created within this study (i.e. presenting the choice as simultaneous or sequential). In comparing our results to previous studies that use a product-selection context, we have identified the presence of numerical values and varying time horizons as two key context variants. It is, however, important to recognise that our financial choice is different from a choice in the consumption context in other ways too, potentially contributing to people's variety-seeking.

Firstly, whereas variety-seeking within product selection in previous studies can be rationalised through the diminishing utility of consumption (Read & Loewenstein, 1995), multiple financial contributions to a goal might not create diminishing utility given that it gets us closer to achieving the goal. Secondly, as goals are personal aspirations with a personal value, the opportunity cost of selecting one over another may be higher, making the decision more difficult and increasing variety-seeking (Dhar & Simonson, 1999). And thirdly, as the action in our study is the contribution of funds towards a goal, while beneficial in the long-term, the choice may be perceived as a short-term loss, resulting in a decision that is framed around loss. We mention these variants to highlight additional features of the study we think relevant to our results and that deserve additional investigation.

It must be noted that our investigation of variety-seeking in simultaneous and sequential everyday financial decisions is limited. Within this study, we provide the first evidence that increased variety-seeking in simultaneous choice does not always occur, but does hold when the decision relates to a non-monetary choice. More research, in particular field studies, is needed to validate our findings. We believe that our findings combined with future research will be very useful to not only financial institutions but also to consumers wanting to make informed financial decisions themselves.

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