
AVOIDING THE FACE VALUE EFFECT IN CRYPTOCURRENCY

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As cryptocurrency is increasingly adopted, regulators must consider whether regulations are needed to protect investors and consumers. In prior research involving a behavioral experiment, we identified the existence of a face value effect when people use cryptocurrency in transactions. Just as prior researchers have found a face value effect when people use foreign cryptocurrency, we found a face value effect with the use of cryptocurrency. People predictably anchor on the nominal amount indicated by the cryptocurrency and fail to accurately convert the amount into their home currency. This cognitive bias results in significant overspending when the cryptocurrency is stronger than the U.S. dollar (USD). This Article examined whether different interventions could reduce this cognitive bias. Based on the results of another behavioral experiment we conducted, we found two interventions did so. First, when prices for a transaction are displayed in both USD and cryptocurrency values, the face value effect and overspending were mitigated. Second, in situations involving bidding on an item with no fixed price, requiring people to write out their bid or payment in USD before bidding in cryptocurrency was even more effective in reducing the face value effect and overspending. Accordingly, we propose the adoption of (1) domestic currency pricing (DCP) for items sold in cryptocurrency that requires the corresponding USD amount to be included for any price in cryptocurrency; and (2) for bidding on items in cryptocurrency, a simple requirement for people to “type out the price” of their bid first in USD, or the “TOP price” for short. These interventions are modest, but they may help reduce unintended overspending due to the face value effect.

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INTRODUCTION

Imagine that the United States switched to a new currency called NOU to replace the U.S. dollar (USD) to combat runaway inflation afflicting the nation. Each NOU would be initially valued at 10,000 USD. What is the likely result when consumers and investors in the United States start spending NOU to buy a new car selling for 5 NOU? Or a new house selling for 50 NOU? Would they be more willing to pay 5 or 50 NOU versus \$50,000 or \$500,000?

If you said they would be more willing to pay the NOU price than the price in dollars, you are right. Even though the values of 5 NOU and 50 NOU are equivalent to \$50,000 and \$500,000 respectively, due to a cognitive bias called the *face value effect* (FVE), people will think they are spending less with amounts whose face value looks smaller.¹ Under the FVE, individuals anchor their

¹ See Priya Raghubir & Joydeep Srivastava, *Effect of Face Value on Product Valuation in Foreign Currencies*, 29 J. CONSUMER RSCH. 335, 335–36, 346–47 (2002), <https://doi.org/10.1086/344430>.

decisions on nominal amounts rather than real value, treating, for example, the nominal value of ¥10,000 (Japanese yen) as larger than \$64, even though the two amounts are equivalent.² When the face value is a smaller number than the real value, people will predictably *overspend* when using NOU—in amounts significantly more than they would if they understood the real value involved.

Although the example is imaginary, something of this sort is happening now, and it is likely to become more widespread as cryptocurrency adoption increases. In a prior behavioral study, we identified the FVE in cryptocurrency, a cognitive bias originally identified by other researchers in the context of foreign money³ that affects people's ability to understand how much they are actually spending when using cryptocurrency.⁴ Under this cryptocurrency illusion, people think they are spending less when the cryptocurrency is worth more than a U.S. dollar, as is the case with Bitcoin, Ether, and BNB, the three cryptocurrencies with the largest market caps totaling over \$2 trillion.⁵ Our hypothetical NOU falls into this category because it is worth \$10,000, meaning one NOU is stronger than one USD. Because people think they are spending less with stronger cryptocurrencies due to their face values, individuals will likely overspend significantly.⁶

In this follow-up study, we examined whether measures can be designed to mitigate the FVE. Through a behavioral experiment, we tested several interventions for their effectiveness in mitigating

² See *id.* We used a conversion rate from yen to USD on Dec. 29, 2025. See 10,000 JPY to USD - Convert Japanese Yen to US Dollars, XE, <https://www.xe.com/en-us/currencyconverter/convert/?Amount=10000&From=JPY&To=USD> [https://perma.cc/FL3T-HJUD] (last visited Dec. 29, 2025, at 15:20 UTC).

³ See Raghurir & Srivastava, *supra* note 1, at 335–36.

⁴ See Edward Lee & Andrew Moshirnia, *Price Fixing: Regulating the Face Value Effect in Cryptocurrency*, 20 VA. L. & BUS. REV. 1, 39 (2025).

⁵ See *id.* at 9. We exclude the stablecoin Tether from the top three cryptocurrencies by market cap because its value is pegged to one USD. See *Cryptocurrency Market Data*, SLICK CHARTS, <https://www.slickcharts.com/currency>; Logan Jacoby, *What is Tether (USDT) and how does it work?*, BANKRATE (Mar. 28, 2025), <https://www.bankrate.com/investing/what-is-tether-stablecoin/> [https://perma.cc/697T-SXAX].

⁶ See Lee & Moshirnia, *supra* note 4, at 33–39 (behavioral experiment showed subjects overspent with stronger cryptocurrencies and underspent with weaker cryptocurrencies).

the cryptocurrency illusion, or FVE. The experiment involved asking people to bid on real estate, a market that has already adopted cryptocurrency for some high-end transactions.⁷ Subjects were asked to role-play as real estate investors, purchasing a home for resale in USD versus cryptocurrency. Subjects were tasked to purchase and resell a mountain house that previously sold for \$615,000 (Mountain House Scenario) or a desert house that previously sold for \$4 million (Desert House Scenario). Subjects were asked first to set a likely resale value of the home in USD. After entering the resale value, subjects either bid using a cryptocurrency or received one of the following interventions: (1) *domestic currency pricing* showing the equivalent value in USD for a cryptocurrency price related to a past sale of the property; (2) a threshold *USD memorialization* of a person's bid or willingness to pay in USD for a transaction before a bid is made in cryptocurrency; or (3) an online *calculator* that converted cryptocurrency values into their USD equivalents.

Our results largely confirmed our hypotheses that the FVE would occur in the real estate bidding and that each intervention would reduce the FVE or cryptocurrency illusion—and mitigate overspending. First, overspending with stronger cryptocurrency occurred. Bids that were first made in cryptocurrency were consistently higher relative to resale values of the houses, leading to reduced profitability (i.e., overspending) relative to USD-denominated resale values of the same houses. This overspending with cryptocurrency was pronounced in the Mountain House Scenario. Second, two of the three interventions worked to significantly mitigate the FVE in at least one of the scenarios. Domestic currency pricing and USD memorialization both reduced the FVE. Surprisingly, USD memorialization, or requiring people first to memorialize their bids in USD, was the most effective intervention of all. It worked in both scenarios, reducing people's anchoring on the face value amount in cryptocurrency. The calculator was the least effective, although we suspect, in hindsight, the design of the calculator had shortcomings and that a different design might yield greater effectiveness.

Based on these results, this Article proposes that the U.S. government and businesses should consider adopting two

⁷ See *infra* notes 65–66 and accompanying text.

interventions to mitigate the FVE. First, when prices for a transaction are displayed in cryptocurrency, the business offering the transaction should provide the equivalent domestic currency pricing (DCP)—here, USD—in equal, if not greater, prominence. Second, for transactions without a fixed price that involve bidding in cryptocurrency, the business offering the transaction should require the consumer or investor to submit the person’s bid or payment in USD before the person’s bid is submitted in cryptocurrency. This USD memorialization can be likened to a diner’s having to type or enter the final payment, including tip, at a restaurant. For ease of reference, we call this latter intervention the “TOP USD,” short for a requirement that the consumer *type out the price* in USD. Our proposals for (1) DCP and (2) TOP USD align with the current legislative proposals in Congress to require transparency in concert ticketing and hotels by requiring the total “All In Prices,” including any hidden fees.⁸ Transparency in pricing and payments is the ultimate goal.

Part I discusses the FVE and the past literature discussing the FVE in foreign currencies, such as the Euro, and in cryptocurrencies. Part I then presents the research question these past studies raise: what interventions, if any, can mitigate the FVE to prevent people’s overspending? Part II presents our study design for the behavioral experiment, which is based on two scenarios involving hypothetical real estate investments. Part III reports our results, while Part IV discusses their significance. Part V proposes specific reforms that the U.S. government and businesses can adopt to reduce the FVE in cryptocurrency through DCP and TOP USD. These modest interventions can help to reduce the risks of overspending due to the FVE. Otherwise, overspending with cryptocurrency is likely to be a major problem with stronger,

⁸ See Mohamed Dabo, *New Law: US Hotels Will Show All Fees Upfront*, HOTEL MANAGEMENT (Aug. 1, 2025), <https://www.hotelmanagement-network.com/news/new-law-us-hotels-will-show-all-fees-upfront/?cf-view> [https://perma.cc/NJS2-6H4H]; Daniel Tencer, *US House Passes Ticket Act Mandating ‘All-In’ Pricing for Ticket Sales, Heads to Senate*, MUSIC BUS. WORLDWIDE (Apr. 30, 2025), <https://www.musicbusinessworldwide.com/us-house-passes-ticket-act-mandating-all-in-pricing-for-ticket-sales-heads-to-senate/> [https://perma.cc/783Y-Q8YB].

popular cryptocurrencies.⁹ Although we do not propose the adoption of currency calculators in transactions, we do not rule out that a calculator designed to prompt the user to first consider a domestic price may help to mitigate FVE.

I. THE FACE VALUE EFFECT IN TRANSACTIONS

The FVE is a well-documented cognitive bias that affects people when making transactions in foreign currencies. Part I explains the FVE and summarizes several past studies of the FVE, including in the context of the adoption of the Euro in the European Union and, more recently, cryptocurrencies. This Part also explains why regulators should be concerned about consumers and investors being affected by FVE with the growing adoption of cryptocurrencies in the United States and abroad. If an individual's transactions are affected by FVE, the individual will likely overspend with cryptocurrencies that are valued at an exchange rate that is greater than one USD.

A. *Face Value Effect with Foreign Currencies*

1. *Raghubir and Srivastava 2002 Study*

In a 2002 article, Priya Raghubir and Joydeep Srivastava introduced the concept of the FVE to explain the cognitive bias that affects people when they make transactional decisions in a foreign currency.¹⁰ The authors found that people are “biased toward the nominal value of the product in a foreign currency, *its face value*, with inadequate adjustment for the exchange rate.”¹¹ The nominal value of an item denominated in a foreign currency will typically be different from the *real value* of the item when the foreign denomination is converted into one's home currency.¹² Past research described people's fixation on the nominal value of money

⁹ Our proposals would also help to mitigate underspending with weaker cryptocurrencies, although we have greater concern for overspending with stronger cryptocurrencies. The latter can lead to worse financial consequences for the person involved.

¹⁰ Raghubir & Srivastava, *supra* note 1, at 335.

¹¹ *Id.*

¹² *See id.*

and failure to appreciate its real value as the “money illusion.”¹³ This cognitive bias operates especially in the context of a person’s use of foreign currencies.

Imagine going to a foreign country whose currency is valued at an exchange rate of 100 USD to 1 Foreign Currency (FC). At a fine restaurant, the price for one entrée is 5 FC. Under the FVE, tourists might be more willing to pay 5 FC on dinner rather than \$500 because the nominal value of 5 FC looks smaller and more affordable than \$500, even though the amounts are equivalent. Conversely, now travel to a foreign country whose currency is valued at an exchange rate of 100,000 FC to 1 USD. Tourists might be less willing to pay 500,000 FC to take a taxi than \$5 because the nominal value of 500,000 FC looks larger and less affordable than \$5, even though the amounts are equivalent and affordable.

In their behavioral experiment, Raghurir and Srivastava tasked individuals (college students in a business course) to make merchandising purchase decisions for Macy’s in buying supplies of silk ties in six different foreign currencies.¹⁴ The respondents’ willingness to pay for the silk ties *decreased* as the face value of the foreign currency *increased*.¹⁵ People were less willing to pay an amount in any foreign currency as the nominal value, or number, got larger.¹⁶ This result is similar to our imagined example above of taking a 500,000 FC taxi ride. Under the FVE, a person’s willingness to take a taxi ride would decrease as the nominal value of the fare kept increasing beyond 500,000—let’s say, a 5 trillion FC fare. In that case, people may walk.

Raghurir and Srivastava’s second experiment tested the difference in the FVE when the foreign currency is weaker than a dollar (or a multiple of a dollar, such as 1 USD = 4 Malaysian ringgits) versus stronger than a dollar (or a fraction of a dollar, such

¹³ IRVING FISHER, THE MONEY ILLUSION 4 (1928); Eldar Shafir, Peter Diamond & Amos Tversky, *Money Illusion*, 112 Q. J. ECON. 341, 341–74 (1997), <https://doi.org/10.1162/003355397555208> (“[P]eople often think about economic transactions in both nominal and real terms, and that money illusion arises from an interaction between these representations, which results in a bias toward a nominal evaluation.”).

¹⁴ See Raghurir & Srivastava, *supra* note 1, at 338.

¹⁵ See *id.* at 339.

¹⁶ See *id.*

as 1 USD = 0.4 Bahraini dinar).¹⁷ The respondents (college students in a marketing class) were asked to make purchasing decisions as tourists buying souvenirs in Malaysia and Bahrain.¹⁸ The results showed a face value effect—respondents *overspent* with the foreign currency stronger than a dollar (Bahraini dinar) and *underspent* with the foreign currency weaker than a dollar (Malaysian ringgits).¹⁹ Why? When using the Bahraini dinar, the nominal values were smaller numbers, and when using the Malaysian ringgits, the nominal values were larger numbers.²⁰ Although the respondents had the respective exchange rates, they “inadequately account[ed] for the real values.”²¹ People instead anchored on the face values of the prices.²²

2. *Application to Euro*

In a behavioral experiment taken by college students in 2012, Raghubir, Vicki Morwitz and Shelle Santan identified the FVE with the Euro.²³ The respondents estimated the total amount in their assigned home currency (Irish Punt, UK pounds, and Deutsche Mark) for purchases of grocery items they made in Euros.²⁴

[A]s predicted, compared to the actual cost of the basket, those for whom the Euro was a multiple of their local currency overestimated the magnitude of

¹⁷ See *id.*

¹⁸ See *id.* at 340.

¹⁹ See *id.* at 341.

²⁰ See *id.* (“Consistent with the idea that people tend to overweight face value, there was overspending in the Bahraini dinar condition and underspending in the Malaysian ringgit condition relative to the U.S. dollar condition, and the amount spent in dinars was significantly larger (almost three times) than the amount spent in ringgits.”); *id.* at 346 (“Labeled the face value effect, our findings show that people tend to underspend when the face value of the foreign currency is a multiple of a unit of the home currency. In contrast, people tend to overspend when the face value is a fraction of the unit of the home currency.”).

²¹ *Id.* at 341.

²² See *id.* at 346.

²³ Priya Raghubir et al., *Europoly Money: How Do Tourists Convert Foreign Currencies to Make Spending Decisions?*, 88 J. RETAILING 7, 7–11 (2012), <https://doi.org/10.1016/j.jretai.2011.11.001>.

²⁴ See *id.* at 10–11.

the value of the shopping basket, while those for whom the Euro was a fraction of their local currency underestimated it, and those where the Euro was equivalent estimated it accurately, with most of these three estimates differing from each other.²⁵

In another part of their study, the researchers examined macroeconomic data of tourist spending over sixteen years in ten countries that adopted the Euro and found an increase in tourist spending over time in those countries that adopted the Euro versus those that did not.²⁶ The result suggested a “Europoly effect”—“increased spending in Europe (where nominal Euro prices were lower than those in the original local currencies in 11 of the 12 countries that changed to the Euro) after the Euro conversion.”²⁷ Other researchers found the same and additional cognitive biases with the Euro’s use.²⁸ It goes beyond the scope of this Essay to

²⁵ *Id.* at 11.

²⁶ *See id.* at 15–16.

²⁷ *Id.* at 8.

²⁸ *See, e.g.,* Raghubir & Srivastava, *supra* note 1, at 347 (discussing an “accordion effect” found in past studies of Euro “where prices are perceived to be less different from each other when they are expressed in euros versus francs, because the prices in euros are compressed with 1euro p 6.56 French francs (Gaston-Breton and Desmet 1999).”); Amelie Gamble et al., *Euro Illusion: Psychological Insights into Price Evaluations with a Unitary Currency*, 7 EUR. PSYCH. 302, 303–09 (2002) (finding (i) Euro illusion as well as (ii) different effect for the Italian Lira, which, despite being weaker than the Euro, was perceived as more expensive due to larger number for Liras and (iii) a “compression effect,” where a smaller nominal difference in currency units appears smaller in real value); Pierre Desmet, *A Study of the Potential Effects of the Conversion to Euro*, 11 J. PROD. & BRAND MGMT. 134, 141–43 (2002) (study found money illusion with Euro when respondents used German currency but not Spanish currency; the latter might have been due to the high conversion rate for Spain, requiring more difficult calculations); Simona Romani & Daniele Dalli, *Effects of the Transition from Lira to Euro on Buyers’ Product Evaluations*, 3 (2002) (finding a “richness effect” from Euro by which people are willing to spend more with Euro in making donations); Edmund Cannon & Giam Pietro Cipriani, *Euro-Illusion: A Natural Experiment*, 38 J. MONEY, CREDIT & BANKING 1391, 1392, 1401–02 (2006) (suggesting a number of effects, including “anchoring, difference assessment, rounding and threshold effects,” may explain differences in church donations in Italy and Ireland after introduction of Euro); *see also* Klaus Wertenbroch, Dilip Soman & Amitava Chattopadhyay, *On the Perceived Value of Money: The Reference*

summarize the extensive literature on the effect of the Euro from a behavioral economics lens. But the Euro provides a compelling, real-world example demonstrating the need for policymakers and researchers to examine similar cognitive effects that cryptocurrency adoption will likely precipitate.

3. *Face Value Effect from Numerosity and Reference Values*

The FVE may not always occur in the same direction as Raghurir and Srivastava found. In 2007, Klaus Wertenbroch, Dilip Soman, and Amitava Chattopadhyay conducted a behavioral experiment and found a face value effect that had a different result than the one found by Raghurir and Srivastava.²⁹ Subjects were given monthly budgets in two foreign currencies—one of lower numerosity compared to the base currency (meaning the foreign currency was stronger than the base currency and had a comparatively lower number) and the other of higher numerosity (meaning the foreign currency was weaker than the base currency and had a comparatively higher number).³⁰ The subjects were then asked their willingness to pay for certain expenses.³¹

The results showed the FVE in reverse: subjects *underspent* with the foreign currency with lower numerosity (the stronger currency) and *overspent* with the foreign currency with higher numerosity (the weaker currency).³² This is the opposite result as Raghurir and Srivastava had found in their 2002 study.³³ Wertenbroch, Soman, and Chattopadhyay surmise that the inclusion of a budget as a reference value in the respective foreign currency led subjects to anchor on the nominal difference between the expenses and the budget, “even though the real expected value was held constant.”³⁴ Thus, when given a budget whose face value in foreign currency was a larger number, people were willing to pay more because the face value made it seem they had more to spend,

Dependence of Currency Numerosity Effects, 34 J. CONSUMER RSCH. 1, 1–2 (2007) (summarizing other studies of Euro adoption’s effect).

²⁹ See Wertenbroch et al., *supra* note 28, at 2.

³⁰ See *id.* at 4.

³¹ See *id.* at 4–5.

³² See *id.* at 5.

³³ See *id.* at 2.

³⁴ *Id.* at 5.

and vice versa.³⁵ But, even in this situation, subjects anchored on the nominal or face value amounts.

Before turning to cryptocurrencies, it is worth commenting on these findings of a reverse dynamic of the FVE when subjects are given a budget in foreign currency. We think these findings show that context is key. For any transaction, consumers or investors may face a plethora of different information, sequencing, and user-interfaces.³⁶ Although more study is needed, we expect that the FVE of the kind found by Wertenbroch, Soman, and Chattopadhyay would more likely arise when consumers and investors are given (or already have) their total budget for specific purchasing decisions converted into the relevant foreign currency, as the subjects were given in Wertenbroch, Soman, and Chattopadhyay's study.³⁷ Without such budget information converted into foreign currency amounts for a specific transaction, people would lack a crucial component from their experiment—i.e., a specific reference value to constrain or measure their spending decisions. Moreover, even those who have a budget, assuming it is converted into the relevant foreign currency, often do not adhere to their budget in real life.³⁸

For these reasons, we believe people are more likely to experience the FVE in the direction found by Raghubir and Srivastava's study. People are more likely to overspend with currencies stronger than their own because the nominal value is smaller, making it seem they are spending less. As discussed below, this result occurred in both of our experiments with

³⁵ See *id.*

³⁶ Indeed, our findings regarding memorialization support the notion that the order of information can change the anchoring effect significantly. See *infra* Part III.D, E.2.

³⁷ See Wertenbroch et al., *supra* note 28, at 5–6.

³⁸ See Rajeev Dhir, *How Many People Actually Stick to a Budget? The Answer Might Surprise You*, INVESTOPEDIA (Sept. 2, 2025), <https://www.investopedia.com/how-many-people-actually-stick-to-a-budget-the-answer-might-surprise-you-11799284> [https://perma.cc/TN27-4P3Z] (“Of those who created a budget, 22% stuck with it, according to Discover.”); cf. Gamble et al., *supra* note 28, at 310 (behavioral experiment testing imposition of budget valued in stronger foreign currency (with lower nominal value) that had a “reverse” Euro illusion effect for at least some higher priced goods because people may have felt they had less money to spend in the foreign currency).

cryptocurrencies in experiments that did not dictate a specific budget to subjects tested.³⁹

B. *Face Value Effect with Cryptocurrencies*

1. *Lee and Moshirnia 2025 Study*

In a 2025 article, we were the first researchers to identify the FVE with the use of cryptocurrencies.⁴⁰ In a behavioral experiment conducted online, we tasked subjects to make business purchasing decisions for a supply of athletic shoes for a store, using ten different cryptocurrencies: four stronger than a dollar, four weaker than a dollar, and two near equivalence.⁴¹ Our results matched our hypotheses.⁴² First, use of stronger cryptocurrencies resulted in “large and statistically significant overbidding, with the overbidding generally following the relative strength of the currency.”⁴³ By contrast, “all four weaker currencies occasioned underbidding, with three of those underbids returning statistical significance.”⁴⁴

Similar to the money illusion found with the nominal value of foreign currencies, we described this phenomenon as the *cryptocurrency illusion*.⁴⁵ Affected by the FVE, people will tend to overspend when using stronger cryptocurrencies compared to USD and underspend weaker cryptocurrencies.⁴⁶ Cryptocurrencies are functionally equivalent to foreign currencies. They have nominal values that must be converted into real values based on their conversion into one’s home currency.⁴⁷

To return to our imagined examples of fine dining and a taxi ride above, we can use the same examples and simply substitute different cryptocurrencies (CC) for the FC involved. In dining at a fine restaurant, the price for one entrée is 5 CC. Under the FVE, consumers might be more willing to pay 5 CC on dinner than \$500

³⁹ See Lee & Moshirnia, *supra* note 4, at 34–36; *infra* Part III.A.

⁴⁰ See Lee & Moshirnia, *supra* note 4, at 1.

⁴¹ See *id.* at 23–27.

⁴² See *id.* at 32–33.

⁴³ *Id.* at 34.

⁴⁴ *Id.* at 36.

⁴⁵ See *id.* at 9, 39.

⁴⁶ See *id.* at 9.

⁴⁷ See *id.* at 7–8.

because the nominal value of 5 CC looks smaller and more affordable than \$500, even though the amounts are equivalent. Conversely, consumers might be less willing to pay 500,000 CC to take a taxi than \$5 because the nominal value of 500,000 CC looks larger and less affordable than \$5, even though the amounts are equivalent and affordable.

We also examined whether large value fluctuations of some cryptocurrencies—what we called an unstable exchange rate—would affect people’s bids.⁴⁸ In some contexts, an unstable exchange rate increased overspending with a stronger cryptocurrency and underspending with a weaker cryptocurrency.⁴⁹ The wide fluctuations in values of some cryptocurrencies only add to the potential problem created by the FVE.

2. *Questions About Mitigating FVE*

In our 2025 study, we discussed the possible mitigation of the FVE through a business practice or a proposed legal requirement of *domestic currency pricing* by which prices in cryptocurrencies are accompanied by the equivalence in USD.⁵⁰ We did not test the effectiveness of DCP in our past study, however. One prior study involving the Euro and dual pricing (in which the price in one currency was bolded and made more prominent) showed no mitigation of the FVE among the small number of subjects tested (n=24).⁵¹ Another study by Stefan Thomas and Heribert Gierl found that multi-pricing of consumer items in the Euro and four stronger currencies (what they call low-denomination currencies compared to the Euro) altered people’s price perceptions compared to the price only in Euros.⁵² Thomas and Gierl contend that this change in view resulted from people

⁴⁸ See *id.* at 39.

⁴⁹ See *id.* at 36–40.

⁵⁰ See *id.* at 43–46.

⁵¹ See Raghurir et al., *supra* note 23, at 11–12; see also Giovanni Mastrobuoni, *The Effects of the Euro-Conversion on Prices and Price Perceptions* 19 (Ctr. for Eur. Pol’y Stud. Working Paper, Paper No. 101, Sep. 2004) [<https://perma.cc/E75Y-DMYH>] (discussing businesses’ varied approaches to implementing dual pricing with the Euro and their home currency).

⁵² Stefan Thomas & Heribert Gierl, *Do Multi-Currency Price Tags Bias Price Perceptions?*, 38 MKTG. ZFP – J. RSCH. AND MGMT. 199, 205 (2016).

engaging in an averaging of the prices,⁵³ although the effect was small.⁵⁴ But they found no such averaging when only two prices were displayed.⁵⁵ As explained in Part II, we set out to examine in this second study whether dual pricing of equal prominence helps to mitigate the FVE, as well as other potential interventions intended to reduce the FVE.

3. *Coda on the USD Dollar Baseline for Determining Overspending*

Before discussing our experiment, it is worth addressing the default baseline (USD) used to evaluate whether overspending has occurred. Our choice is justified because consumers and investors in the United States typically make spending decisions and payments in USD, even when using credit cards or transactions not involving physical dollars. Income in the United States is typically paid to employees in USD, and employees typically contribute to their employment-based retirement accounts by allocating a certain percentage of their USD income for investments. In other words, people in the United States are accustomed to thinking about their earnings, savings, payments, and investing in terms of USD.⁵⁶ We did not discount for inflation of USD or account for potential appreciation or fluctuations in value of cryptocurrency over time when evaluating overspending in our experiment. But using the respective values of USD and cryptocurrency at the time of the transaction still provides a measure by which one can judge the FVE and overspending. If a person has overspent today, the potential inflation of the U.S. dollar in the future provides little, if any, financial relief. Likewise, the same person who overspent today using cryptocurrency would only suffer worse consequences if the

⁵³ See *id.*

⁵⁴ See *id.* at 204, 211.

⁵⁵ See *id.* at 211.

⁵⁶ The U.S. dollar also underlies the global foreign exchange market, comprising 89 percent of global currency transactions. See John Hawkins, *New Data Shows the US Dollar Still Dominates Foreign Exchange Markets—Despite Trump’s Economic Chaos*, CONVERSATION (Oct. 1, 2025, at 12:18 ET), <https://theconversation.com/new-data-shows-the-us-dollar-still-dominates-foreign-exchange-markets-despite-trumps-economic-chaos-266233> [<https://perma.cc/WN6R-NGF7>].

cryptocurrency greatly appreciates in value in the future. Overspending today has real consequences.

C. *Greater Adoption of Cryptocurrencies and the Need to Address the FVE*

Starting in 2025, the second Trump Administration's national policies embracing cryptocurrencies ushered in a sea change in the U.S. government's position.⁵⁷ Among the many pro-crypto policies, President Trump issued an executive order to allow employee retirement accounts to obtain access to investments in cryptocurrencies and other alternative assets, including private equity and gold.⁵⁸ Although the values of cryptocurrencies are volatile, cryptocurrency trading in the United States increased by fifty percent in 2025.⁵⁹ The growth in cryptocurrency adoption in the United States was fueled by institutional investors such as BlackRock, Fidelity, Grayscale, and other firms, which offer products like Bitcoin ETFs, as well as strong demand for cryptocurrency investments among retail investors.⁶⁰ Other parts of the world, including Asia-Pacific countries, sub-Saharan Africa, and Latin America also experienced significant growth in cryptocurrency trading.⁶¹

⁵⁷ See Lee & Moshirnia, *supra* note 4, at 3–6 (summarizing the second Trump Administration's key changes in national cryptocurrency policy).

⁵⁸ See *id.* at 6; Exec. Order No. 14330, 90 Fed. Reg. 38921 (Aug. 7, 2025).

⁵⁹ See Landon Manning, *U.S. Crypto Usage Grew 50% This Year, Report Claims*, YAHOO! FIN. (Oct. 21, 2025), <https://finance.yahoo.com/news/us-crypto-usage-grew-50-225927750.html> [<https://perma.cc/BRV5-LXJV>].

⁶⁰ See *From ETFs to Treasuries: How the U.S. Is Shaping Digital Finance*, CHAINALYSIS (Sep. 17, 2025), <https://www.chainalysis.com/blog/north-america-crypto-adoption-2025/> [<https://perma.cc/5RHY-PBJG>]; Francisco Rodrigues, *Bitcoin ETFs Are Now BlackRock's Top Revenue Source, Exec Says*, COINDESK (Nov. 29, 2025, at 15:49 ET), <https://www.coindesk.com/business/2025/11/29/bitcoin-etfs-are-now-blackrock-s-top-revenue-source-exec-says> [<https://perma.cc/726Q-DDTZ>]; Olivier Acuna, *Bank of America Greenlights Wealth Advisers to Recommend Up to 4% Bitcoin Allocation*, COINDESK (Dec. 2, 2025, at 09:49 ET), <https://www.coindesk.com/business/2025/12/02/bank-of-america-greenlights-wealth-advisors-to-recommend-up-to-4-bitcoin-allocation> [<https://perma.cc/L3NC-FUAL>].

⁶¹ See Chainalysis Team, *The 2025 Global Adoption Index: India and the United States Lead Cryptocurrency Adoption*, CHAINALYSIS (Sept. 2, 2025),

With the increased adoption of cryptocurrencies, businesses are developing ways to make or accept payments in cryptocurrencies. For example, PayPal is incorporating cryptocurrency in its platform so users can transfer crypto just like cash.⁶² PayPal joins a growing number of crypto payment apps, such as BitPay, in a transactions market expected to grow to \$2.4 billion by 2033.⁶³ Many retailers accept payments directly or indirectly (via apps) in Bitcoin or other cryptocurrency.⁶⁴ Real estate is one market where cryptocurrency is receiving greater adoption, especially for high-end real estate. Christie's International Real Estate has formed "a dedicated division to allow buyers to purchase real estate with digital currency."⁶⁵ In another example, the real estate investor Grant Cardone sold a Florida beach property for 400 bitcoin (then valued at \$44 million).⁶⁶ These developments portend greater usage of cryptocurrencies in transactions, along with increased susceptibility to the FVE.

With this increase in cryptocurrency adoption in the United States and abroad, more people are likely to engage in transactions in cryptocurrency that have a cryptocurrency illusion. Yet research in ways to mitigate the FVE is scant. This study aimed to shed

<https://www.chainalysis.com/blog/2025-global-crypto-adoption-index/>
[<https://perma.cc/CGM9-K5N4>].

⁶² See Krisztian Sandor, *PayPal Adding Crypto to Peer-to-Peer Payments, Allowing Direct Transfer of BTC, ETH, Others*, COINDESK (Sept. 15, 2025, at 07:58 ET), <https://www.coindesk.com/business/2025/09/15/paypal-adding-crypto-to-peer-to-peer-payments-allowing-direct-transfer-of-btc-eth-others> [https://perma.cc/T5WU-SV6Y].

⁶³ See *Cryptocurrency Payment Apps Market Size, Share & Trends Analysis Report 2025-2033, with Profiles of Coinbase, BitPay, Coinomi, Paytomat, Apirone, SecuX Technology, Binance, CoinJar, and Cryptopay*, YAHOO! FIN. (Aug. 22, 2025), <https://finance.yahoo.com/news/cryptocurrency-payment-apps-market-size-162200530.html> [https://perma.cc/H38H-58XB].

⁶⁴ See, e.g., Marc Guberti, *50 Stores Where You Can Pay With Crypto*, YAHOO! FIN. (Jul. 11, 2025), <https://finance.yahoo.com/news/50-stores-where-pay-crypto-210111991.html> [https://perma.cc/GFG9-GQGR].

⁶⁵ Debra Kamin, *Christie's Debuts Crypto Real Estate Division*, N.Y. TIMES (July 24, 2025), <https://www.nytimes.com/2025/07/24/realestate/crypto-real-estate-christies.html> [https://perma.cc/4HWR-AEV8].

⁶⁶ See David Okoya, *Grant Cardone Sells Golden Beach Estate Previously Owned By Tommy Hilfiger For Bitcoin*, YAHOO! FIN. (Sep. 10, 2025), <https://finance.yahoo.com/news/grant-cardone-sells-golden-beach-141512064.html> [https://perma.cc/M8D9-UY7I].

greater light on this critical question, which policymakers and businesses must confront as cryptocurrency adoption continues.

II. STUDY DESIGN

A. *Experimental Design and Instrument*

This experiment is a 2 x 4 between-subjects online experiment with U.S.-based adults (18+) recruited through the online platform Prolific. The variables under review were Strength of Currency, that is, the strength of the currency relative to USD: (a) very strong [\$1300] and (b) strong [\$300]; and Exchange Information Interventions testing whether the interventions had an effect in reducing the FVE: (i) none, (ii) prior USD memorialization of bid by subject, (iii) USD to Crypto Peg for past sale price, and (iv) Crypto to USD Calculator. The instrument consisted of two scenarios as described below, each involving a fictional cryptocurrency and USD. All subjects considered both scenarios.

1. *Scenarios*

Subjects were asked to role-play as real estate investors, purchasing a home for resale. Subjects were tasked with purchasing and reselling a mountain house that previously sold for \$615,000 (Mountain House Scenario, or “Mountain” for short) or a desert house that previously sold for \$4 million (Desert House Scenario, or “Desert” for short). This design was implemented to prevent participants from relying on prior knowledge from real-world housing markets and to prevent participants from simply repeating their bids from one scenario to another, which could have biased their decisions and obscured the effects under study. By providing specific but disparate purchase prices for the two properties—\$615,000 for the mountain house and \$4 million for the desert house—participants were given a proportional frame of reference within each scenario, allowing them to make investment decisions relative to each house’s past stated value rather than their own expectations or assumptions about the housing market. The goal was to ensure that participants’ choices reflected the experiment’s manipulations rather than pre-existing knowledge, experience with real estate pricing, or the order of exposure to the two scenarios.

2. *Cryptocurrencies and Information Interventions*

Two fictional cryptocurrencies were created, with values modelled on the existing cryptocurrencies Ethereum and BNB. These were selected to give a range of values across orders of magnitude (100, 1000). These currencies were previously found to precipitate overspending in our earlier examination of the FVE.⁶⁷

Table 1. Scenarios and Cryptocurrencies Used

Scenario	Cryptocurrency Name	Strength Relative to USD	Value in USD	Modelled/Close Cryptocurrency
Mountain	XCash (XCH)	Stronger	1300	Ethereum (ETH)
Desert	MintNova (MNV)	Strong	300	BNB (BNB)

For each cryptocurrency, the relative stability of the exchange rate with the USD was noted as stable by stating “[t]his exchange rate is stable.”

Subjects were presented with a home listing and told to imagine that they wished to purchase the home for resale. As homes can vary considerably in price, the subjects were asked to first put forth what they estimated to be the resale value of the home in USD. After entering the resale value in USD, subjects received one of four exchange information interventions, as detailed below and summarized in Table 2:

1. BASIC – give the bid price for the home in the cryptocurrency, then give the bid price for the home in USD;

2. USD MEMORIALIZATION FIRST – give the bid price for the home first in USD, then give the bid price in the cryptocurrency;

3. INFO Crypto with Extra Peg of Past Sale Price – when presented with Previous Sale Price in both USD and Crypto, give the bid price for the home in the cryptocurrency, then give the bid price for the home in USD; and

⁶⁷ See Lee & Moshirnia, *supra* note 4, at 26, 34–35, 37.

4. CALC Crypto with Extra Peg of Past Sale Price and Mandatory Calculator – when presented with Previous Sale Price in both USD and Crypto and when required to use a calculator, give the bid price for the home in the cryptocurrency, then give the bid price for the home in USD.

Table 2. Four Exchange Information Interventions to Test Reduction of Face Value Effect

Condition	Observation 1 (Resale Value)	Observation 2 First Bid	Observation 3 Second Bid
Basic	USD	Crypto Bid	USD Bid
USD Memorialization	USD	USD Bid	Crypto Bid
Information Peg	USD	Crypto Bid	USD Bid
Calculator	USD	Crypto Bid	USD Bid

3. *Readability of Scenarios*

We tried to ensure that the scenarios had accessible, equivalent readability, given that subjects with a variety of educational backgrounds would be reviewing the survey instrument. The Mountain House and Desert House had a Flesch-Kincaid Reading Ease of 65.4 and 66.8, and Flesch-Kincaid Grade level of 8.2 and 8.1 respectively, meaning they should be understood by fifteen year-olds who have completed eighth grade.⁶⁸

4. *Demographics of Subjects*

After basic math and task competency screens were applied, the study involved 375 ($N=375$) subjects. This total was sufficient to satisfy the power analysis with an assumed Cohen's f of .2, p of .05, and power of .8. Repeated-Measures ANOVA power analysis

⁶⁸ The tests are available online. See, e.g., *Readability Test*, WEBFX, <https://www.webfx.com/tools/read-able/> [https://perma.cc/T925-DBD4]. The Flesch-Kincaid Grade Level assesses the grade level required for comprehending text on a scale of zero (basic) to eighteen (advanced) “based on average sentence length and word complexity.” *Flesch Reading Ease and the Flesch Kincaid Grade Level*, READABLE, <https://readable.com/readability/flesch-reading-ease-flesch-kincaid-grade-level/> [https://perma.cc/YT3N-J9NH].

returned an N of 366 with f of .2, and an N of 645 with f of .15; accordingly, data collection was initially set to $N=700$ to address anticipated attrition.⁶⁹ The sample was somewhat skewed by gender, with 150 participants (40%) identifying as female, 221 participants (59%) identifying as male, and four (1%) identifying as non-binary/third gender with one subject preferring not to state. The sample was diverse in age, with 17 aged 18 to 24, 99 aged 25 to 34, 111 aged 35 to 44, 80 aged 45 to 54, 45 aged 55 to 64, 20 aged 65 to 74, and 3 aged 75 or older.

The sample was diverse in education and exposure to cryptocurrency. Regarding education, 2 (1%) reported some high school without a degree, 32 (9%) reported having a high school diploma or GED, 67 (18%) reported having some college, 43 (11%) reported having an associate's degree, 163 (43%) reported having a bachelor's degree, and 68 (18%) reported having a graduate degree. This population is more educated than the national populace.⁷⁰

The sample had differing levels of experience with cryptocurrency. One hundred thirty-eight subjects (37%) reported currently owning crypto, 66 (18%) had previously owned crypto, and 166 (44%) reported never owning crypto. Age, gender, overall crypto experience, and education returned no significant differences in responses for Mountain Profit, Desert Profit, Initial Crypto Bid, or Initial Cash Bid.

B. *Research Questions*

The FVE occurs when purchasers familiar with the domestic currency (here, USD) alter purchasing decisions when conducting transactions with foreign currencies. The FVE increases a person's willingness to pay when the foreign currency is strong against the dollar (e.g., when considering the Bahraini Dinar, which is worth typically \$2.5 USD).⁷¹ Our previous study confirmed this FVE with respect to US currency and high value cryptocurrency.⁷²

⁶⁹ Our previous study involving FVE had a comparatively large cull rate due to similar task and math competency screens. *See* Lee & Moshirnia, *supra* note 4, at 31–32.

⁷⁰ *See* Melanie Hanson, *Education Attainment Statistics*, EDUCATION DATA (Jan. 14, 2025), <https://educationdata.org/education-attainment-statistics> [<https://perma.cc/A47J-MVHC>].

⁷¹ *See* Raghubir & Srivastava, *supra* note 1, at 335–36.

⁷² *See* Lee & Moshirnia, *supra* note 4, at 33–35.

This experiment sought to reconfirm that the FVE occurs with use of cryptocurrency and to explore methods of moderating the FVE. We summarize our research questions below:

Q1. Face Value Effect: Will the FVE again be found to apply to cryptocurrency transactions?

a. Will subjects show an increased willingness to pay when the cryptocurrency is stronger than the USD (e.g., a cryptocurrency valued at \$300 or \$1,300)?

b. Will subjects show a larger FVE when considering a very strong cryptocurrency (\$1,300) than when considering a strong cryptocurrency (\$300)?

Q2. Information Interventions: Will information interventions linked to cryptocurrency mitigate the FVE?

a. Will subjects show a decreased willingness to pay when the cryptocurrency is paired with an additional value peg?

b. Will subjects show a decreased willingness to pay when the cryptocurrency is paired with an additional value peg and mandatory calculator?

c. Will subjects show a decreased willingness to pay when first memorialising the USD bid price before considering the cryptocurrency bid price?

Our hypotheses for each question are presented with the results in Part III. In short, we expected the answer to each question to be yes.

C. *Validation Checks*

Prior to hypothesis testing, we conducted validation analyses to confirm that randomization and task structure in our instrument operated as intended. Specifically, we were concerned with any ordering effects from exposure to scenarios and with preexisting differences in real estate valuation. These checks revealed no statistically significant differences across conditions in

home resale value estimates (with resale values averaging approximately \$943,000 in the Mountain House Scenario and \$5,580,000 in the Desert House Scenario, as shown below in Table 3) and no effects attributable to presentation order of the two scenarios. These validation checks indicated that subsequent differences in bidding behavior are unlikely to be driven by artifacts of experimental design.

Table 3. Resale Values in USD, All Scenarios and Conditions

Condition	Scenario	N	Mean (\$)	Median (\$)
USD Memorialization	Mountain	92	964,636	900,000
Calculator	Mountain	79	920,127	850,000
Basic	Mountain	89	891,517	850,000
Info	Mountain	97	988,402	900,000
Total	Mountain	357	943,015	850,000

Condition	Scenario	N	Mean (\$)	Median (\$)
USD Memorialization	Desert	87	5,567,241	5,400,000
Calculator	Desert	80	5,670,000	5,225,000
Basic	Desert	90	5,615,000	5,000,000
Info	Desert	90	5,479,711	5,100,000
Total	Desert	347	5,580,617	5,200,000

III. RESULTS: ANALYSIS AND IMPLICATIONS

Part III reports the results of our study, which largely confirmed our hypotheses. We found the FVE present in both scenarios. We also found that the interventions involving USD memorialization and domestic currency pricing both worked in mitigating the FVE. However, contrary to our expectation, the mandatory calculator did not.

A. *Hypothesis 1A: Presence of the Face Value Effect – FOUND*

Hypothesis 1A predicted the presence of the FVE, such that bids denominated in cryptocurrency stronger than USD would be systematically inflated relative to USD denominated resale values, compared to bids initially denominated in USD. Such distortion would result in *lower* realised profit versus a resale value denominated in USD, meaning the person overspent when using cryptocurrency. We tested our hypothesis by comparing the USD Memorialization group and Crypto-First groups, summarized in Table 2 above. First bids are informative because they are not subject to anchoring from a person's prior bids. The USD Memorialization group always placed a first bid in USD, whereas all other groups placed their initial bids in cryptocurrency. Our findings confirmed Hypothesis 1A. Cryptocurrency-first denominated bids were consistently higher relative to resale values, leading to reduced profitability (or overspending with cryptocurrency bids) relative to USD-denominated resale values.

1. *Mountain – FVE Found in Initial Bid Profit and Crypto Bid Profit*

The results of the Mountain House Scenario showed the FVE present in cryptocurrency bids. As summarized in Table 4 below, a ranked ANOVA revealed a statistically significant difference in First Bid Profit (that is, calculating the profit from the resale USD value minus the first bid made) across conditions ($p < .001$), with a moderate effect size (Cohen's $f = 0.217$). The USD Memorialization group had the highest mean and median profits ($n=92$, $M=213,332$; $Med.= 150,000$). As expected, those in the Basic condition of bidding first in cryptocurrency reported the lowest profits. As shown in the last column in Table 4, ranked pairwise comparisons indicated that the USD Memorialization Group produced significantly higher first-bid profits than the crypto-first conditions in aggregate ($p=.001$) and the Basic group in particular ($p=.001$). One statistically significant difference was observed among the crypto-first conditions: the Information group, which received a past sale price in both USD and cryptocurrency, had significantly ($p=.047$) more profit than the Basic Group, which lacked the past sales price.

Table 4. Mountain Profit on First Bid by Crypto Condition (Ranked ANOVA)

Condition	<i>N</i>	First Bid Currency	Mean Profit (\$)	Median (\$)	Significant Pairwise Differences (Ranked Tests, $p < .05$)
USD Memorialization	92	USD	213,332	150,000	> Basic ($p = .001$)
Calculator	79	XCH	165,792	100,000	—
Basic	89	XCH	122,181	77,000	< Memorialization ($p = .001$); < Information ($p = .047$)
Information	97	XCH	201,666	140,500	> Basic ($p = .047$)
Total	357	---	176,918	109,000	—

Overall Test: Ranked ANOVA,⁷³ $p = 0.000759$; Cohen's $f = 0.217$

It is important to examine if the profit gap was temporary or otherwise resolved when considering all bids made in cryptocurrency. That is, if the difference in profit was present only in first bids or if it persisted into the memorialization group's use of cryptocurrency in the second bid. This gap in profit persisted, and in fact widened, when considering only the cryptocurrency bids.

As shown in Table 5 below, a ranked ANOVA revealed a statistically significant difference in Crypto Profit (that is, calculating the profit from the resale USD value minus the crypto bid made) across conditions ($p < .001$), with a moderate effect size (Cohen's $f = 0.247$). The USD Memorialization group had the highest mean and median profits ($n=92$, $M=236,147$; $Med.=172,000$). As expected, those in the Basic condition reported the lowest profits. As shown in the last column of Table 5, ranked pairwise comparisons indicated that the USD Memorialization Group produced significantly higher first-bid profits from the crypto-first conditions in aggregate ($p<.001$) and the Basic group ($p=.001$) and Calculator group ($p=.013$). One statistically significant difference was observed among the crypto-first conditions: the Information group, which had the past sales price in both USD and cryptocurrency, recorded significantly more profit than the Basic Group, which lacked the past sales price ($p=.0495$).

⁷³ Ranked ANOVA was used due to non-normal distributions and the presence of outliers. Pairwise comparisons are ranked tests. Only statistically significant pairwise differences are reported. We report Cohen's f for omnibus ranked ANOVA effects and Cohen's d for pairwise contrasts where relevant, consistent with standard practice.

Table 5. Mountain Profit on Crypto Bid by Crypto Condition (Ranked ANOVA)

Condition	N	Mean Profit (\$)	Median (\$)	Significant Pairwise Differences (Ranked Tests, $p < .05$)
USD Memorialization	92	236,147	172,000	> Basic ($p = .001$); > Calculator ($p = .013$)
Calculator	79	165,792	100,000	< Memorialization ($p = .013$)
Basic	89	122,181	77,000	< Memorialization ($p = .001$); < Information ($p = .0495$)
Information	97	201,666	140,500	> Basic ($p = .0495$)
Total	357	176,918	109,000	—

Overall Test: Ranked ANOVA,⁷⁴ $p = 0.0000659$; Cohen's $f = 0.247$

2. *Desert – FVE Found in Initial Bid Profit and Crypto Bid Profit*

The results of the Desert House Scenario also showed the FVE present in cryptocurrency bids. As summarized in Table 6 below, a ranked ANOVA revealed a statistically significant difference in First Bid Profit (that is, calculating the profit from the resale USD value minus the first bid made) across conditions ($p = .041$), with a moderate-to-small effect size (Cohen's $f = 0.148$). Again, the USD Memorialization group had highest mean and median profits ($n=87$, $M=870,977$; $Med.= 750,000$). Surprisingly, those in the Info condition reported the lowest profits, a result different from the Mountain House Scenario. As shown in the last column in Table 6, ranked pairwise comparisons indicated that the USD Memorialization Group produced significantly higher first-bid profits from the crypto-first conditions in aggregate ($p=.007$) and the Information group in particular ($p=.038$). No statistically significant differences were observed among the crypto-first conditions.

⁷⁴ See *id.*

Table 6. Desert Profit on First Bid by Crypto Condition (Ranked ANOVA)

Condition	<i>N</i>	First Bid Currency	Mean Profit (\$)	Median (\$)	Significant Pairwise Differences (Ranked Tests, $p < .05$)
USD Memorialization	87	USD	870,977	750,000	> Information ($p = .0382$)
Calculator	80	MNV	852,385	500,000	—
Basic	90	MNV	807,643	550,006	—
Information	90	MNV	685,781	500,000	< Memorialization ($p = .0382$)
Total	347	---	802,230	550,000	—

Overall Test: Ranked ANOVA,⁷⁵ $p = 0.0413$; Cohen's $f = 0.148$

Just as in the Mountain House Scenario, the profit gap was not limited to first bids, indicating that the initial anchoring in the first bid impacted the amount of the second bid. Moreover, the profit gap again widened, with the memorialization group seeking a larger profit when offering a bid in cryptocurrency. As shown in Table 7 below, a ranked ANOVA revealed a statistically significant difference in Crypto Profit (that is, calculating the profit from the resale USD value minus the crypto bid made) across conditions ($p < .001$), with a moderate effect size (Cohen's $f = 0.236$). The USD Memorialization group had the highest mean and median profits ($n=87$, $M=1,036,058$; $Med.= 900,200$). Surprisingly, those in the Information condition reported the lowest profits. Ranked pairwise comparisons indicated that the USD Memorialization Group produced significantly higher crypto profits than each of the crypto-first conditions. No statistically significant differences were observed among the crypto-first conditions.

⁷⁵ See *id.*

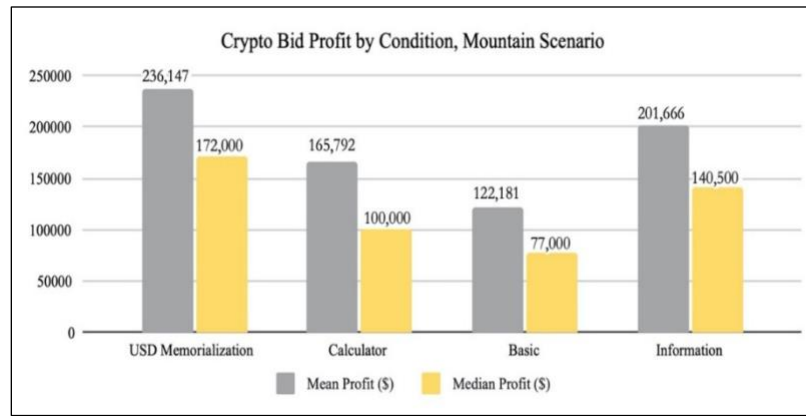
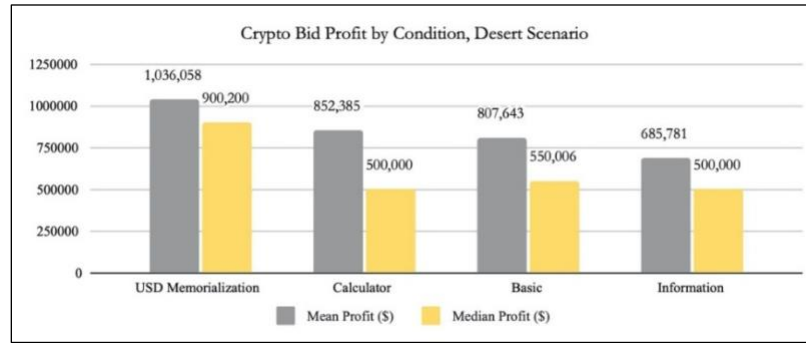
Table 7. Desert Profit on Crypto Bid by Crypto Condition (Ranked ANOVA)

Condition	N	Mean Profit (\$)	Median (\$)	Significant Pairwise Differences (Ranked Tests, $p < .05$)
USD Memorialization	87	1,036,058	900,200	> Basic ($p = .0068$); > Information ($p = .0010$); > Calculator ($p = .0039$)
Calculator	80	852,385	500,000	< Memorialization ($p = .0039$)
Basic	90	807,643	550,006	< Memorialization ($p = .0068$)
Information	90	685,781	500,000	< Memorialization ($p = .0010$)
Total	347	843,619	635,000	—

Overall Test: Ranked ANOVA⁷⁶, $p = 0.0000486$; Cohen's $f = 0.236$

To show the comparative differences in profits from bids made in cryptocurrency among the conditions tested, we depicted them in Figures 1 and 2 below. Each chart shows the mean and median profits; in both scenarios, the USD Memorialization group had the highest profit amounts (indicated by the first two bars in each chart).

⁷⁶ See *id.*

Figure 1. *Crypto Bid Profit by Condition, Mountain Scenario*Figure 2. *Crypto Bid Profit by Condition, Desert Scenario*

B. *Hypothesis 1B: Contextual Strength of the Face Value Effect (Mountain vs Desert) – PARTIALLY FOUND*

Hypothesis 1B predicted that the FVE would be strongest in the Mountain scenario, where valuation of the crypto currency was higher (XCH = 1,300 USD) than in the Desert scenario (MNV = 300 USD). As summarized in Table 8 below, the results support this hypothesis: the differences in First Bid profit between the USD-First Memorization group and the aggregate Crypto-First groups were more significant and had greater effect size ($p=.001$; Cohen's $d = .368$) in the higher crypto denomination for the Mountain scenario (M=213,332; Med.=150,000 v. M=164,276; Med.=100,000) than for the Desert scenario (M=870,977; Med.=750,000 v. M=779,227; Med.=500,000; $p=.007$, Cohen's $d =$

.308).⁷⁷ However, it should be noted that, when considering crypto-bid profits, this pattern was reversed (Mountain: $p < .001$; Cohen's $d = .458$; Desert: $p < .001$; Cohen's $d = .526$). Although Hypothesis 1B is supported for initial valuation effects, subsequent anchoring dynamics partially reverse the pattern when crypto bids are considered. As noted above, when the USD Memorialization group used the initial USD bid as an anchor, the following crypto bid was even lower, with the difference most extreme in the Desert scenario—a result discussed in greater detail when addressing anchoring below.

Table 8. Strength of Face Value Effect Mountain v. Desert Scenario (Ranked ANOVA)

Scenario	Condition	N	Bid Type	Mean Profit (\$)	Median (\$)	Comparison to Crypto First, Significance & Effect Size
Mountain	USD Memorialization	92	First	213,332	150,000	$p = .00143$; Cohen's $d = .368$
Mountain	USD Memorialization	92	Crypto	236,147	172,000	$p = .0000845$; Cohen's $d = .458$
Mountain	Crypto-First	265	First / Crypto	164,276	100,000	
Desert	USD Memorialization	87	First	870,977	750,000	$p = .00673$; Cohen's $d = .308$
Desert	USD Memorialization	87	Crypto	1,036,058	900,200	$p < .000001$ Cohen's $d = .526$
Desert	Crypto-First	260	First / Crypto	779,227	500,000	

C. Summary of Face Value Effect Findings

Taken together, the results support both FVE hypotheses. As Hypothesis 1A posited, cryptocurrency-denominated bids were inflated, and subsequent cash bids appeared anchored to those inflated values. Likewise, as Hypothesis 1B expected, the FVE was strongest in the Mountain House Scenario involving the stronger cryptocurrency and was present, though noisier, in the Desert House Scenario.

⁷⁷ This pattern is suggested even without aggregation, as seen in Tables 4 and 6. The Mountain House Scenario returned a significant difference between the memorialization group and the basic group, while the Desert House Scenario did not.

D. *Intervention Hypotheses and Results*

We next examined whether specific interventions reduced the magnitude of the FVE. Our hypothesis for each is that it would reduce the FVE. Specifically, Hypothesis 2A predicted that informational pegging (INFO) would reduce the FVE. Hypothesis 2B predicted that providing a mandatory calculator (CALC) would also reduce the FVE. Finally, Hypothesis 2C predicted that prior USD memorialization (USD Memorialization) would reduce the FVE. The results supported two of our hypotheses, as summarized below:

Hypothesis 2A (INFO): Partially supported (Found in Mountain and not in Desert). Informational peg appears to constrain the FVE in some contexts.

Hypothesis 2B (CALC): Not supported. The calculator intervention did not reliably reduce the FVE and appears compromised by participant non-use or misuse, as reflected in noisy and internally inconsistent data.

Hypothesis 2C (USD Memorialization): Supported. Prior USD memorialization produced the clearest and most consistent reduction in Face Value–driven bidding distortions in both scenarios.

For ease of understanding the comparative effectiveness of the three interventions, we report all findings together for each of the two real estate scenarios. As discussed below, the intervention involving an initial memorialization of a bid in USD was the most effective in mitigating the FVE in both scenarios, followed by the informational peg of a past sale price in both cryptocurrency and USD. The mandatory calculator did not reduce the FVE, although we do not rule out that a calculator with a different design might work, especially if coupled with the other interventions.

1. *Mountain Scenario – USD Memorialization has strong effect, Info has moderate effect, both lowering FVE*

Table 9 below compares the effectiveness of the interventions in pairs for the Mountain House Scenario resulting in

significant differences in crypto profit. The USD Memorialization condition produced significantly higher profit outcomes than both the Calculator (\$70,355) and Basic groups (\$113,966), with the greatest effect size being the difference between USD Memorialization and Basic (Cohen's $d = .69$), shown in the second row. Differences between USD Memorialization and INFO were directionally consistent but not statistically significant. As shown in the last row of Table 9, INFO was significantly (\$79,485, $p = .0495$) more profitable than BASIC (though this effect was less strong than USD Memorialization).

Table 9. Significant Pairwise Comparisons in Crypto Profit, Mountain Scenario

Condition 1	Condition 2	Diff. in Averages	Sig.	Effect Size (Cohen's d)
USD Memorialization (n=92)	Calculator (n=79)	70,355	.013	.48
USD Memorialization (n=92)	Basic (n=89)	113,966	<.001	.69
Basic (n=89)	Information (n=97)	-79,485	.0495	.38

Comparisons involving the CALC condition were difficult to interpret due to substantial variance and apparent arithmetic errors. We believe this result was likely due to the calculator's crypto-first input design, as discussed in greater detail below.

2. *Desert Scenario – USD Memorialization has strong effect lowering FVE*

Table 10 below compares the effectiveness of the interventions in pairs for the Desert House Scenario resulting in significant differences in crypto profit. The USD Memorialization condition produced significantly higher profit outcomes than Calculator (\$183,673), Information (\$350,277) and Basic groups (\$228,415), with the greatest effect size being the difference between USD Memorialization and Information (Cohen's $d = .64$), though all effect sizes were medium-to-strong as indicated in the last column of Table 10. No crypto-first group was significantly

different from any other. Thus, in both house scenarios, USD Memorialization requiring people to write down their bid first in USD had the greatest impact in lowering the FVE and reducing overspending with cryptocurrency bids. USD Memorialization forced people to *think first in USD*, thereby likely mitigating the impact of face values of cryptocurrency.

Table 10. Significant Pairwise Comparisons in Crypto Profit, Desert Scenario

Condition 1	Condition 2	Difference in Averages	Sig.	Effect Size (Cohen's <i>d</i>)
USD Memorialization (n=87)	Calculator (n=80)	183,673	.004	.55
USD Memorialization (n=87)	Basic (n=90)	228,415	.007	.49
USD Memorialization (n=87)	Information (n=90)	350,277	.001	.64

E. *Summary and Interpretation of Results*

In sum, USD memorialization was the most effective intervention for mitigating the FVE. INFO (including the past sale price in both USD and cryptocurrency) also showed some evidence of effectiveness in reducing the FVE. By contrast, calculator-based interventions received comparatively little empirical support, likely due to limited participant engagement due to the calculator provided and an entry method that may have locked in bias.

1. *Ineffectiveness of Calculator*

One plausible explanation for the weak performance of the calculator intervention is that its mere provision may have discouraged participants from using their own external calculation tools. Participants assigned to the calculator condition may have inferred that the provided interface was the intended means of computation, reducing the likelihood that they would independently verify conversions using their own calculators or external devices. To the extent that participants either misused the embedded calculator or failed to use it carefully, this substitution

effect could plausibly increase noise rather than reduce error. Consistent with this interpretation, the calculator condition exhibited unusually high variance and internally inconsistent bidding patterns, suggesting that the intervention may have displaced more reliable self-directed calculation strategies without successfully standardizing computational accuracy.

A second, and conceptually distinct, explanation concerns the cognitive framing effects induced by the calculator itself. Because the calculator required participants to enter values in cryptocurrency units (as depicted below in Figure 3), it may have reinforced a crypto-first mental model that amplified the FVE of cryptocurrency rather than mitigating it. In other words, while the calculator plausibly reduced some forms of arithmetic error by automating the conversion, it may have simultaneously increased cognitive bias by anchoring attention on crypto quantities (creating a Crypto $\rightarrow$ USD anchor, in contrast to the USD Memorialization group, which was USD $\rightarrow$ Crypto; and the INFO group, which had a dual peg allowing for either comparison USD $\leftrightarrow$ Crypto). This pattern highlights an important distinction between computational accuracy and cognitive bias: an intervention can reduce mathematical mistakes while potentially worsening valuation bias. In this sense, the calculator (had it not discouraged external calculator use) may have lowered the risk of pure arithmetic error but heightened susceptibility to face-value reasoning. Such result illustrates that tools designed to aid calculation can unintentionally strengthen the very cognitive frames that generate biased judgments. An examination of the relative differences between USD and Crypto bids within groups supports this interpretation and shows significant anchoring, summarized next.

Figure 3. Crypto to USD Calculator from Mountain Scenario

Enter XCH e.g. 1.5	US\$ \$0.00
--	-----------------------------------

2. *Anchoring*

Each group submitted two bids for the property, in USD and Crypto. Importantly, for the USD Memorialization group, the USD price would serve as the anchor for the Crypto price, while the opposite would hold true for the Crypto-first groups. In other words, the USD Memorialization group was asked to think first in USD, while the Crypto-first groups were asked to think first in cryptocurrency.

This anchoring also played an important role in maximizing crypto profits in the Mountain scenario, as the USD Memorialization group tended to have a *lower* Crypto bid relative to its initial USD bid, whereas two of the crypto-first groups show the opposite pattern (which was significant in the aggregate for crypto-first groups (.003), as well as significant between USD Memorialization and Basic ($p = .045$; Cohen's $d = .39$) and USD Memorialization and Calculator ($p = .014$; Cohen's $d = .47$), as shown in Table 11. When comparing the mean USD bid and mean XCH cryptocurrency bid (columns 4 and 5), the USD Memorialization group had the highest mean difference, with a much greater mean USD bid versus mean crypto bid.

Table 11. Anchoring with Respective Interventions Encountered, Mountain Scenario

Condition MOUNTAIN	<i>N</i>	Currency Bid Order	Mean USD Bid	Mean XCH Bid	Mean Difference between Bids
USD Memorialization	92	USD – MNV	751,304	728,489	22,815**; * ; +
Crypto-First	265	MNV – USD	763,484	771,233	-7,749**
Calculator	79	MNV – USD	734,967	754,335	-19,368*
Basic	89	MNV – USD	750,481	769,336	-18,854+
Information	97	MNV – USD	798,639	786,736	11,903

Significantly different at ** $p = .003$; * $p = .014$; + $p = .045$

This anchoring also played a role in maximizing crypto profits in the Desert House Scenario, as the USD Memorialization

group tended to have a *lower* Crypto bid relative to its initial USD bid, whereas other groups had a far smaller difference or even showed an opposite pattern (the difference between bids for the memorialization group and for crypto-first groups in aggregate was significant ($p=.01$), but was not significant for groups separately), shown below in Table 12.

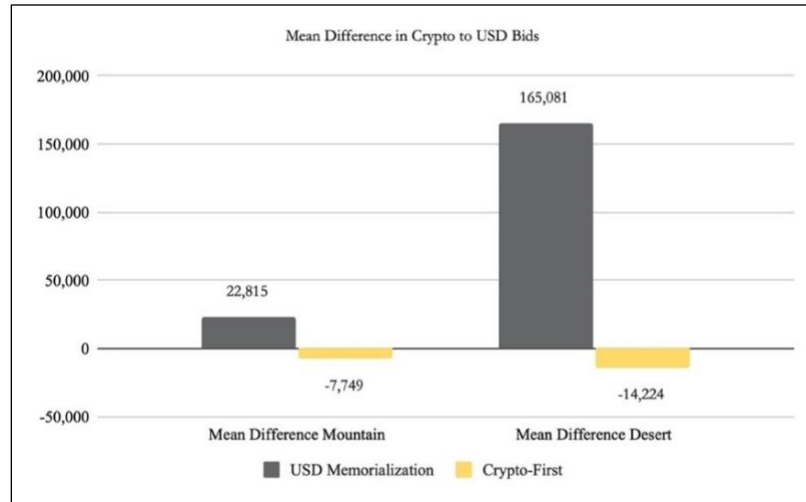
Table 12. Anchoring with Respective Interventions Encountered, Desert Scenario

Condition DESERT	N	Currency Bid Order	Mean USD Bid	Mean MNV Crypto Bid	Mean Difference between Bids
USD Memorialization	87	USD – MNV	4,696,264	4,531,184	165,081*
Crypto-First	260	MNV – USD	4,791,642	4,805,866	-14,224*
Calculator	80	MNV – USD	4,852,750	4,817,615	35,135
Basic	90	MNV – USD	4,812,778	4,807,357	5,420
Information	90	MNV – USD	4,716,189	4,793,930	-77,741

Significantly different at * $p=.01$

To highlight the stark difference in how the USD Memorialization group versus the Crypto-First groups treated their own conversions between Crypto and USD values, we show the mean differences from the Crypto bids and USD bids by the same subjects in Figure 4 below. Whereas the USD Memorialization group consistently offered a crypto bid that was *lower* in real value than its USD bid (Mountain: \$22,815; Desert: \$165,081), the Crypto-First groups in aggregate did not follow this pattern.

Figure 4. Mean Difference in Crypto to USD Bid, USD Memorialization v. Crypto-First



IV. DISCUSSION

Part IV discusses implications of these results. Results reaffirm our prior finding that the FVE applies to cryptocurrency transactions, while providing insight into initial bias and anchoring that may both induce overspending. Memorialization in domestic currency (here, USD) proved to be the most effective means of mitigating the FVE. This finding has important policy and regulatory implications.

A. *The Face Value Effect in Cryptocurrency Transactions*

The results provide strong additional evidence that the FVE applies to cryptocurrency transactions. This finding reaffirms our prior research into the FVE with cryptocurrency.⁷⁸ Across both the Mountain and Desert House Scenarios, participants who initially bid in cryptocurrency had lower realized profits (resale value minus first bid) than participants who first bid in USD (Mountain first-bid profit: $p = 0.000759$, Cohen's $f = 0.217$; and Desert first-bid profit: $p = 0.0413$, Cohen's $f = 0.148$). This pattern appears even more strongly when considering crypto-bid profit (resale value minus

⁷⁸ See Lee & Moshirnia, *supra* note 4, at 35–36.

crypto bid), with statistically significant differences in both scenarios (Mountain crypto-bid profit: $p = 0.0000659$, Cohen's $f = 0.247$; Desert crypto-bid profit: $p = 0.0000486$, Cohen's $f = 0.236$).

The first-bid analyses are particularly important because they isolate valuation effects prior to anchoring from a person's previous bid. In both scenarios, the USD Memorialization (USD-first) condition yielded the highest mean and median profits (Mountain: $M = \$213,332$; $Med. = \$150,000$; Desert: $M = \$870,977$; $Med. = \$750,000$). By contrast, crypto-first conditions, in which people made bids in cryptocurrency first, consistently produced lower profits (Mountain Basic: $M = \$122,181$; Desert Information: $M = \$685,781$). Because resale value estimates did not differ across conditions, these differences reflect distortions introduced at the bidding stage rather than pre-existing differences in arriving at property value.

B. *Anchoring and the Mechanics of Bias*

Anchoring analyses demonstrate that bid order materially shapes valuation trajectories.⁷⁹ In the Mountain House Scenario, the USD Memorialization group's crypto bids were on average lower than their initial USD bids (mean difference = +\$22,815), whereas crypto-first groups showed the opposite pattern (mean difference = -\$7,749), a statistically significant aggregate difference ($p = .003$; Cohen's $d = .349$). A similar pattern emerged in the Desert House Scenario, with Memorialization participants again showing lower crypto bids relative to USD anchors (mean difference = +\$165,081 vs. -\$14,224 for crypto-first groups; $p = .01$; Cohen's $d = .295$). These results indicate that the FVE does not only affect a single bid but systematically anchors subsequent valuations even when domestic currency is used.

The magnitude of observed distortions was substantial. In the Desert House Scenario, USD Memorialization participants

⁷⁹ The behavioral economics literature on anchoring is extensive and traces back to the seminal work of Amos Tversky and Daniel Kahneman. See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1128 (1974). Raghurir and Srivastava's face value effect relies on this theory of anchoring and insufficient adjustment to the correct value. See Raghurir & Srivastava, *supra* note 1, at 336 ("We argue that people use price or the face value as a natural anchor because it is the most accessible and perceptually salient information.").

earned on average \$350,277 more in crypto-bid profit than Information participants ($p = .001$; Cohen's $d = .64$), and over \$228,000 more than Basic participants ($p = .007$; Cohen's $d = .49$). Moreover, the FVE became more extreme as currency valuation increased. In the Mountain House Scenario, where the cryptocurrency was very strong relative to the U.S. dollar (\$1,300), the Memorialization condition produced substantially higher profits than crypto-first conditions (first-bid mean profit: \$213,332 vs. \$164,276 for crypto-first groups; $p = .00143$; Cohen's $d = .368$). In the Desert House Scenario, where the cryptocurrency was strong but less extreme (\$300), the effect remained statistically significant though weaker (USD Memorialization first-bid mean profit: \$870,977 vs. \$779,227; $p = .00673$; Cohen's $d = .308$).

This pattern supports our hypothesis (and prior study's finding) that currency strength amplifies the FVE.⁸⁰ Such amplification is understandable given that stronger currencies will have lower face values, making it appear the amounts are, in fact, lower. It is important to note that some cryptocurrencies are even stronger than the ones we tested, with orders of magnitude higher than the very-strong \$1,300 valuation tested here (as of May 2026, one Bitcoin is worth approximately \$80,000 USD and Ethereum is close to \$2,350 USD).⁸¹

C. *Evaluating Information and Calculator Interventions*

USD memorialization was the most effective and consistent intervention. In the Mountain House Scenario, USD Memorialization participants earned significantly higher profits than Basic ($p < .001$; Cohen's $d = .69$) and Calculator participants ($p = .013$; Cohen's $d = .48$). In the Desert House Scenario, USD Memorialization participants earned significantly higher profits than all other groups, Calculator ($p = .004$; Cohen's $d = .55$), Basic ($p = .007$; Cohen's $d = .49$), and Information ($p = .001$; Cohen's $d = .64$). These results indicate that requiring participants to articulate

⁸⁰ See Lee & Moshirnia, *supra* note 4, at 34 (“[S]tronger currency XA, XB, and KA occasioned large and statistically significant overbidding, with the overbidding generally following the relative strength of the currency.”).

⁸¹ See *Live Cryptocurrency Prices & Market Data*, COINDESK, <https://www.coindesk.com/price> (on file with Columbia Business Law Review) (last visited May 4, 2026).

a USD valuation before interacting with cryptocurrency may mitigate FVE-driven bid overspending.

Providing an additional informational peg produced limited and context-dependent effects. In the Mountain House Scenario, Information participants earned significantly more profit than Basic participants in both first-bid ($p = .047$) and crypto-bid ($p = .0495$) analyses. However, in the Desert House Scenario, no statistically significant differences emerged between Information and other crypto-first conditions. This pattern suggests that additional informational cues may mitigate the FVE when currency strength is extreme but may be insufficient when valuation noise increases or exchange ratios are smaller. But we should note that our scenarios involved a proposed real estate sale *without a fixed or even a listing price* for the respective house. The Information intervention provided the price only for a past sale of the house. That Information was enough to mitigate the FVE in the Mountain House Scenario. Based on the partial effectiveness of the Information intervention in bidding without any listing price, we think the Information intervention will be stronger for sales involving fixed prices and no bidding. In such case, people are given the final price in both USD and cryptocurrency, and therefore do not have to perform any mathematical calculation or strategizing on the amount needed to pay for the item.

The calculator intervention failed to reliably reduce the face value effect. In both scenarios, Calculator participants did not significantly differ from the Basic condition and produced smaller profits than USD Memorialization participants (Mountain crypto-bid: USD Memorialization > Calculator, $p = .013$; Desert crypto-bid: USD Memorialization > Calculator, $p = .0039$). It is likely that the calculator design (which required a crypto input for a USD output) contributed to this lack of impact, as discussed above.⁸²

D. *Implications for Design and Regulation*

The relative effectiveness of USD memorialization and ineffectiveness of calculator-based interventions highlights a critical distinction between computational accuracy and cognitive framing. Despite providing a conversion tool, calculator participants continued to exhibit inflated crypto-denominated bids and lower

⁸² See *supra* Part III.E.1.

profits relative to USD-first participants. By contrast, USD memorialization altered bid order without providing additional computational assistance, yet it consistently reduced the FVE (e.g., Mountain crypto-bid profit advantage of \$113,966 over Basic; $p < .001$). Interventions that required memorialization of a price in domestic currency *prior* to crypto valuation consistently produced higher profits across scenarios and bid types. By contrast, an intervention that preserved crypto-first framing (such as the crypto-input calculator provided) failed to mitigate the FVE. The data therefore support the conclusion that correcting cognitive framing may be vital in addressing the FVE rather than simply correcting arithmetic alone. A calculator with a different design requiring an amount in USD to be input that is converted into cryptocurrency may be more effective and is worth further testing.

V. PROPOSALS FOR REFORMS TO MITIGATE THE FACE VALUE EFFECT

Part V proposes ways in which regulators or businesses can institute safeguards to mitigate the FVE that will likely arise with people's use of cryptocurrencies in transactions. Based on the results of our study, we recommend two interventions that can be adapted to different contexts: (1) domestic currency pricing (DCP) and, in the case of bidding in cryptocurrency, (2) requiring consumers and investors to type out the price in USD (TOP USD) that they intend to pay. Part V concludes by proposing areas for future study of the ways in which the FVE can be mitigated. Our proposals are meant to open a public debate on the FVE from the use of cryptocurrency and to encourage further research on this important topic.

A. *Institutions for Reforms*

Before considering the specific reforms to address the FVE, it is worth considering the various institutions that may be involved in formulating and implementing the reforms. We defer a debate over which institution would be best to implement these reforms,⁸³

⁸³ Seminal work on the subject of comparative institutional analysis was set forth in NEIL K. KOMESAR, *IMPERFECT ALTERNATIVES: CHOOSING*

although we think the U.S. government and businesses can both play important, complementary roles in mitigating the FVE.⁸⁴ We offer preliminary thoughts below.

1. *U.S. Government*

The advantage of a national law or federal agency regulation or guidance is achieving a uniform requirement in the United States to address the FVE. If mitigating the FVE were left solely to businesses to decide, some businesses might do nothing. If people overspend with cryptocurrency, businesses stand to benefit financially by people spending more with cryptocurrency than they would with USD. For that reason, we believe some intervention by the federal government is warranted. We consider three different actors—Congress, the Federal Trade Commission, and the President—below.

a. *Congress*

Although many cryptocurrency bills have been proposed,⁸⁵ Congress has thus far enacted only one major cryptocurrency legislation called the GENIUS Act.⁸⁶ The Act regulates a specific kind of cryptocurrency called “payment stablecoins,” which are pegged to a fixed value in USD.⁸⁷ Under the Act, only certain qualifying entities are allowed to issue payment stablecoins in the

INSTITUTIONS IN LAW, ECONOMICS, AND PUBLIC POLICY 3-6 (1994) (contending that policy goals must be evaluated comparatively based on the different institutions that might implement them).

⁸⁴ A complementary approach is consistent with the SEC Crypto Task Force’s efforts to include public meetings and submissions in attempting “to help create a regulatory framework that both achieves the Commission’s important regulatory objectives—including protecting investors—and preserves industry’s ability to offer products and services.” Commissioner Hester M. Peirce, *The Journey Begins*, SEC (Feb. 4, 2025), <https://www.sec.gov/newsroom/speeches-statements/peirce-journey-begins-020425> [<https://perma.cc/WW5T-8RKP>].

⁸⁵ See Lee & Moshirnia, *supra* note 4, at 13.

⁸⁶ *Id.* at 5.

⁸⁷ See *US Establishes First Federal Regulatory Framework for Stablecoins: The GENIUS Act Passes Congress and Awaits President Trump’s Signature*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP (July 17, 2025), <https://www.skadden.com/insights/publications/2025/07/us-establishes-first-federal-regulatory-framework> [<https://perma.cc/5BE9-YFAT>].

United States.⁸⁸ Although the GENIUS Act requires a qualified payment stablecoin issuer to redeem its stablecoin for whatever the designated “fixed amount of monetary value,”⁸⁹ the Act requires the issuer to “maintain identifiable reserves backing the outstanding payment stablecoins of the permitted payment stablecoin issuer on an at least 1 to 1 basis.”⁹⁰ Not surprisingly, stablecoin issuers like Circle, Fiserv, and PayPal have adopted stablecoins (USDC, FIUSD, and PYUSD, respectively) that are pegged 1:1 to the U.S. dollar, meaning the value of the stablecoin is \$1.⁹¹ A major benefit of using payment stablecoins is that they are transmitted and secured through decentralized blockchain technology, thereby avoiding the transaction fees commonly exacted by credit card companies for transactions.⁹²

Stablecoins valued at \$1 each do not likely raise the FVE because their nominal value (1) is equivalent to the real value of the stablecoin (\$1).⁹³ People spending with the stablecoin USDC, for example, should immediately understand that 1 USDC equals 1 USD. However, the rise of stablecoins set at a fixed 1:1 ratio with the U.S. dollar underscores that, beyond USD-based stablecoins, the values of cryptocurrencies are *not* fixed to the U.S. dollar. Bitcoin is a noteworthy example of this fact: since 2009, its value in USD has fluctuated greatly, although more often in an increasing

⁸⁸ GENIUS Act, § 2(11), Pub. L. No. 119-27, 139 Stat. 419, 420 (2025).

⁸⁹ *Id.* § 2(22), 139 Stat. at 421 (definition of stablecoin).

⁹⁰ *Id.* § 4(a)(1), 139 Stat. at 425.

⁹¹ See, e.g., *The World's Largest Regulated Stablecoin Powering Global Finance*, CIRCLE, <https://www.circle.com/usdc> [perma.cc/52P8-4XW4] (“USDC is a digital dollar backed 100% by highly liquid cash and cash-equivalent assets and is redeemable 1:1 for US dollars.”); *FIUSD Stablecoin*, FISERV, <https://www.fiserv.com/en/solutions/embedded-finance/fiUSD-stablecoin.html> [https://perma.cc/3DSQ-YAUC] (“Rely on a fully reserved, USD-backed stablecoin. FIUSD provides a predictable store of value that is always redeemable at \$1 USD.”); *Built for stable payments*, PAYPAL, <https://www.paypal.com/us/digital-wallet/manage-money/crypto/pyusd> [https://perma.cc/D94X-ZFER] (“PayPal USD (PYUSD) is a stablecoin that is redeemable 1:1 for US dollars.”).

⁹² See Lee & Moshirnia, *supra* note 4, at 5.

⁹³ In our prior study, cryptocurrencies at near equivalence to a dollar did not show the FVE for one cryptocurrency, although it did for another. See *id.* at 38–39. It is possible that other attitudes towards spending using cryptocurrency may be present even in the absence of the FVE.

fashion.⁹⁴ Hence, outside of stablecoins, we expect the FVE will affect people's transactions when using cryptocurrencies. Congress should consider enacting legislation that is intended to reduce the FVE in cryptocurrency-based transactions, especially where overspending may occur. Below we propose the outline for such a bill (which can alternatively serve the basis for an agency regulation discussed next).

b. Federal Trade Commission

The Federal Trade Commission can address the FVE without the need for any new legislation from Congress. The FTC already has the authority to issue guidelines for businesses that offer transactions in cryptocurrencies, similar to how the FTC has issued guidelines for social media paid promotions.⁹⁵ The Federal Trade Commission Act prohibits “unfair or deceptive acts or practices in or affecting commerce,” and broadly authorizes the FTC to prevent persons and entities from “using unfair methods of competition in or affecting commerce” and “unfair or deceptive acts or practices in or affecting commerce.”⁹⁶ In the past, the FTC has brought enforcement actions against retailers that used price listings, such as a “manufacturer’s list price,” in a deceptive or misleading way.⁹⁷

The FTC has broad authority to intervene to stop deceptive practices. As courts have recognized, “it has been consistently held that advertising falls within its proscription not only when there is proof of actual deception but also when the representations made have a capacity or tendency to deceive, i.e., *when there is a likelihood or fair probability* that the reader will be misled.”⁹⁸ To prove an FTC Act Section 5 violation, the FTC must prove: “(1) a representation, omission, or practice, that (2) is likely to mislead consumers acting reasonably under the circumstances, and (3) the representation,

⁹⁴ See *Bitcoin Price History Chart (Since 2009)*, BITBO, <https://charts.bitbo.io/price/> [<https://perma.cc/3C96-PHVM>].

⁹⁵ See Lee & Moshirnia, *supra* note 4, at 45–46.

⁹⁶ 15 U.S.C. § 45(a)(1), (a)(2).

⁹⁷ See, e.g., *Giant Food, Inc. v. F.T.C.*, 322 F.2d 977, 981–82 (D.C. Cir. 1963) (“The Commission here has determined that the use of the term ‘manufacturer’s list price’ represents to the public that that was the price at which the product was usually and customarily sold by other stores in the area.”).

⁹⁸ *F.T.C. v. Sterling Drug, Inc.*, 317 F.2d 669, 674 (2d Cir. 1963) (emphasis added).

omission, or practice is material.”⁹⁹ Moreover, “[t]he deception need not be made with intent to deceive; it is enough that the representations or practices were likely to mislead consumers acting reasonably.”¹⁰⁰ As courts recognize, “[a] representation ‘may be likely to mislead by virtue of the *net impression* it creates even though the [representation] also contains truthful disclosures.’”¹⁰¹

Given the well-documented FVE with cryptocurrencies, the FTC has a strong case that the *omission* of corresponding prices in USD for transactions offered only in cryptocurrency is a material omission likely to deceive or mislead consumers. When encountering prices denominated in only a cryptocurrency whose value is stronger than a dollar, reasonable consumers will likely overspend—believing, due to the FVE, they are spending less than they are. The net effect of how the prices are listed may mislead consumers affected by the FVE.

This situation involving the cryptocurrency illusion is analogous to the unfair or deceptive practices of “hidden fees” charged by hotels and live-event ticketing businesses that the FTC recently issued a rule to stop.¹⁰² Businesses displayed a seemingly lower price for their lodging or tickets to entice consumers to make a purchase, but later in the transaction process, displayed a higher total price with the additional hidden fees added in.¹⁰³ The manner of presentation of prices misled.

Similarly, businesses can exploit the cryptocurrency illusion by displaying a price in only a cryptocurrency value that looks lower (due to the FVE) to entice consumers and investors, while leaving out or “hiding” the USD price (or equivalent conversion). Indeed, this scenario can be even more exploitative of consumers and

⁹⁹ F.T.C. v. LeadClick Media, LLC, 838 F.3d 158, 168 (2d Cir. 2016).

¹⁰⁰ *Id.*

¹⁰¹ F.T.C. v. Dave, Inc., 2025 WL 2698698, at 27 (C.D. Cal. Sep. 12, 2025) (quoting F.T.C. v. Cyberspace.com LLC, 453 F.3d 1196, 1200 (9th Cir. 2006)) (emphasis added).

¹⁰² See *FTC Rule on Unfair or Deceptive Fees to Take Effect on May 12, 2025*, FTC (May 5, 2025), <https://www.ftc.gov/news-events/news/press-releases/2025/05/ftc-rule-unfair-or-deceptive-fees-take-effect-may-12-2025> [<https://perma.cc/3XU3-HUHT>].

¹⁰³ See Susan Tompor, *What You Need to Know about the FTC’s Crackdown on Hidden Fees*, USA TODAY (May 13, 2025), <https://www.usatoday.com/story/money/2025/05/13/ftc-hidden-fee-ban-tickets/83599987007/> [<https://perma.cc/4LBQ-N7TE>] (discussing hidden fee problem).

investors than the case of hidden hotel or concert ticket fees because, in this cryptocurrency scenario, the final price does not even have to be given in USD. Businesses can leave out USD prices, even the total price, entirely. And consumers and investors might not realize how much they spent until much later, such as when they are in debt or even financial ruin.

Below we propose below a requirement of domestic currency pricing (DCP) and a requirement that consumers type in the total price in USD they intend to pay. Our proposal can be enacted by Congress in legislation or adopted by the FTC in a guideline or formal regulation.

c. Executive Order

In 2025, the Trump Administration issued three executive orders embracing cryptocurrencies as a legitimate form of digital asset.¹⁰⁴ We recommend the President consider issuing an executive order that focuses on instituting greater safeguards for consumers and investors in the use of cryptocurrencies, including recognizing the need to address the FVE so consumers and investors do not get caught overspending. To our knowledge, government regulators have not examined the FVE in cryptocurrencies, much less considered the need to institute safeguards for consumers and investors, especially to prevent overspending by people. An executive order could instruct the FTC and other relevant federal agencies to study the FVE in cryptocurrencies and undertake efforts to formulate sensible rules to mitigate it.

¹⁰⁴ See Exec. Order No. 14178, *Strengthening American Leadership in Digital Financial Technology*, 90 Fed. Reg. 8647 (Jan. 23, 2025), <https://www.whitehouse.gov/presidential-actions/2025/01/strengthening-american-leadership-in-digital-financial-technology/>; Exec. Order No. 14233, *Establishment of the Strategic Bitcoin Reserve and United States Digital Asset Stockpile*, 90 Fed. Reg. 11789 (Mar. 6, 2025); *Fact Sheet: President Donald J. Trump Establishes the Strategic Bitcoin Reserve and U.S. Digital Asset Stockpile*, WHITE HOUSE (Mar. 6, 2025), <https://www.whitehouse.gov/fact-sheets/2025/03/fact-sheet-president-donald-j-trump-establishes-the-strategic-bitcoin-reserve-and-u-s-digital-asset-stockpile/> [<https://perma.cc/B7NN-BSXY>]; Exec. Order, *Democratizing Access to Alternative Assets*, *supra* note 58.

2. *Best Business Practices*

Businesses that adopt and accept cryptocurrencies for transactions have an important role to play. We recommend that such businesses *voluntarily* implement measures to mitigate the possible FVE in cryptocurrency transactions—and do so immediately. Although we have described our reforms in terms of government interventions below, they can be easily adopted by businesses without any government intervention. Indeed, businesses have far greater flexibility in developing and experimenting with new practices and user-interfaces that are consumer- and investor-protective, even beyond the ones we propose.

The best business practices can later be adopted into law. For example, automatic enrollment of employees in retirement accounts was first a voluntary measure.¹⁰⁵ The Pension Protection Act of 2006 gave employers the statutory authority to make enrollment mandatory at their workplaces.¹⁰⁶ Congress later made automatic enrollment mandatory under the SECURE 2.0 Act for plans established on Dec. 29, 2022 or later.¹⁰⁷ In the behavioral economics literature, automatic enrollment is described as a “nudge,” which pushes people to a favored practice while allowing them the freedom to opt out.¹⁰⁸ Recent studies suggest that

¹⁰⁵ See Kathleen Pender, *Automatic enrollment in 401(k)*, SFGATE (Aug. 8, 2026), <https://www.sfgate.com/business/networth/article/automatic-enrollment-in-401-k-2491506.php> (on file with Columbia Business Law Review) (“McDonald’s Corp. became the first company to implement automatic enrollment when it started its 401(k) plan in 1984.”).

¹⁰⁶ See JOHN J. TOPOLESKI, CONG. RSCH. SERV., IF12756, DEFINED CONTRIBUTION RETIREMENT PLANS: AUTOMATIC ENROLLMENT (2024), <https://www.congress.gov/crs-product/IF12756> (on file with Columbia Business Law Review); Stephen F. Befort, *The Perfect Storm of Retirement Insecurity: Fixing the Three-Legged Stool of Social Security, Pensions, and Personal Savings*, 91 MINN. L. REV. 938, 977 (2007).

¹⁰⁷ See *Navigating SECURE 2.0 Mandatory Auto-enrollment*, JOHN HANCOCK (May 13, 2025), <https://retirement.johnhancock.com/us/en/viewpoints/legislative--regulatory/navigating-secure-2-0-mandatory-auto-enrollment> (on file with Columbia Business Law Review).

¹⁰⁸ See Graham Lawton, *So Did Nudging Work?*, SLATE (June 30, 2013, at 08:30 ET), <https://slate.com/technology/2013/06/nudge-policy-cass-sunstein-on-automatic-enrollment-and-food-choices.html> (on file with Columbia Business Law Review).

automatic enrollment, coupled with automatic escalation of contributions, have only modestly increased savings, however.¹⁰⁹

Our DCP and TOP-USD proposals operate as nudges. The proposals allow people the freedom to engage in transactions with cryptocurrency, but with more information (i.e., the domestic currency price) and with an ordering of steps (i.e., type out first one's amount to pay in USD) to ensure greater transparency in such transactions. Our informational and sequential nudges are designed to reduce cognitive distortions in people believing they are spending less than they are when using stronger cryptocurrencies in transactions. Even if adopted in legislation or regulation, these nudges allow businesses the freedom to decide whether to accept cryptocurrency (or USD), and consumers and investors the freedom to decide whether to use cryptocurrency (or USD). Our proposals do *not* require any business to accept USD for transactions. Instead, our proposals merely require pricing *information* in USD. The goal is simply to provide people with accurate information of the amounts they are paying or planning to spend.

B. *The Lack of Regulation of Setting Prices in USD*

Surprisingly, there is no federal law requiring businesses in the United States to display their prices in USD. Indeed, this lack of federal requirement in pricing reflects the much larger gap in any federal requirement that *legal tender* (defined as “United States coins and currency (including Federal reserve notes and circulating notes of Federal reserve banks and national banks) . . .”) must be accepted beyond anything other than “. . . all debts, public charges, taxes, and dues.”¹¹⁰ In other words, for mere sales, merchants and businesses in the United States are free to refuse USD for ordinary

¹⁰⁹ See Anna Louie Sussman, *Do Nudges Help Americans Save for Retirement? Not as Much as We Thought.*, INSIGHTS (Sep. 23, 2024), <https://insights.som.yale.edu/insights/do-nudges-help-americans-save-for-retirement-not-as-much-as-we-thought> [https://perma.cc/YEB2-DW6J].

¹¹⁰ 31 U.S.C. § 5103. The concept of legal tender has a long history, including early constitutional challenges to the federal government's power even to recognize legal tender. See JohnPaul M. Callan, *Reexamining the Federal Monetary Powers*, 19 U. MIAMI BUS. L. REV. 111, 124–27 (2011); see also James B. Thayer, *Legal Tender*, 1 HARV. L. REV. 73, 73–79 (1887).

transactions.¹¹¹ As the Federal Reserve explains, “Private businesses are free to develop their own policies on whether to accept cash unless there is a state law that says otherwise.”¹¹²

Yet, the lack of a federal requirement of setting prices in USD does not mean that federal law has not regulated how prices are displayed to consumers. For example, as mentioned above, the FTC has brought enforcement actions against pricing that is unfair or deceptive.¹¹³ And, in 2025, the FTC issued the Trade Regulation Rule on Unfair or Deceptive Fees related to prices related to concert tickets and short-term lodging to promote transparency in the total price and the disclosure of hidden fees, simultaneously discouraging bait-and-switch pricing.¹¹⁴

Although the FTC’s Trade Regulation Rule does not include a formal requirement of USD pricing, the FTC recognized the importance of price to consumers:

When shopping for a good or service, consumers want to know: *how much?* It is a bedrock principle of FTC law that price is material to a consumer’s decision about whether to purchase a good or service. Consumers look for prices to comparison shop and to weigh what a good or service might be worth. Most consumers also rely on price to answer critical budgeting questions such as: Can I afford this hotel or short-term rental for my upcoming vacation? Can I afford these concert tickets? Unfortunately, consumers face widespread and growing unfair and deceptive fee practices that make it much harder to find out: *how much will this cost?*¹¹⁵

¹¹¹ See *Is It Legal for a Business in the United States to Refuse Cash as a Form of Payment?*, FED. RSRV., https://www.federalreserve.gov/faqs/currency_12772.htm [<https://perma.cc/Q5CB-TX4H>] (“There is no federal statute mandating that a private business, a person, or an organization must accept currency or coins as payment for goods or services.”).

¹¹² *Id.*

¹¹³ See *supra* notes 97, 102.

¹¹⁴ See Trade Regulation Rule on Unfair or Deceptive Fees, 90 Fed. Reg. 2066, 2067 (Jan. 10, 2025) (to be codified at 16 C.F.R. P. 464).

¹¹⁵ *Id.* at 2067 (emphasis added).

Congress is also considering enacting a federal law requiring “all-in” final prices for concert tickets. The House passed the Transparency in Charges for Key Events Ticketing (TICKET) Act, but the Senate has yet to act.¹¹⁶

Although the FTC’s and Congress’s concerns about lack of transparency in pricing arose in the context of concert ticket and short-term lodging pricing, we believe the same concerns arise in the context of cryptocurrency pricing. Due to the FVE, a cryptocurrency price may operate as a kind of *cognitive* bait-and-switch. Consumers see a lower nominal price in a stronger cryptocurrency, anchor on it, and inadequately convert the price into USD. Consequently, the person thinks they are spending less than they are. Nor should it matter whether businesses using cryptocurrency pricing are intentionally using a bait-and-switch like the merchants using hidden fees. Intentional or not, the result will likely end up being the same—consumers think the price is lower than it actually is.

Some critics may question why the federal government should regulate the FVE when businesses have long used other strategic psychological pricing tactics, such as prices ending in 99 cents (instead of a whole dollar), to boost their sales.¹¹⁷ But there has never been an expectation, much less requirement, that the federal government must regulate all ills of the same ilk—or “none at all.”¹¹⁸ We believe that the magnitude of overspending and potential harms to consumers that may arise from the cryptocurrency illusion are far greater than the difference of a penny in a price. With cryptocurrency, the difference in price (between cryptocurrency and USD) and resulting overspending could be in the tens of thousands, if not more.¹¹⁹ In short, overspending due to the cryptocurrency illusion can quickly lead to financial ruin. The potential for businesses to exploit the FVE in cryptocurrency raises

¹¹⁶ See Tencer, *supra* note 8.

¹¹⁷ See, e.g., Steve Strauss, *What the End of the Penny Means for Business*, INC. (Mar. 5, 2025), <https://www.inc.com/steve-strauss/what-the-end-of-the-penny-means-for-business/91149619> (on file with Columbia Business Law Review).

¹¹⁸ *Ry. Express Agency v. N.Y.*, 336 U.S. 106, 111 (1949) (“It is no requirement of equal protection that all evils of the same genus be eradicated or none at all.”).

¹¹⁹ See *supra* Part III.A, B (discussing results showing people overspending with cryptocurrency bids).

a similar concern as the one the FTC recently addressed with hidden fees charged by hotels and live-event ticket vendors. In all situations, transparency in prices should rule.

C. *Two Proposed Interventions to Mitigate FVE*

This section outlines our proposed reforms to mitigate the FVE in two scenarios: (1) an offer of a proposed transaction (e.g., sale or service) is made to the public in a cryptocurrency price, and (2) an offer of a proposed transaction is made to the public, who can bid on the offering in cryptocurrency. As explained below, our first requirement of domestic currency pricing (DCP) applies to both scenarios, while our second requirement that consumers and investors type out the price in USD for bids they make applies only to the second scenario.

1. *Proposed Text*

Below we offer a draft text for legislation that can also be converted into a guidance or rule of the FTC instead of a statute. The proposal builds on some terms already contained in the GENIUS Act.

§ 1. DEFINITIONS.

(1) The terms “digital assets” and “national currency” shall have the same meanings as set forth in the GENIUS Act.¹²⁰

(2) “Cryptocurrency” means a digital currency that is recorded on a cryptographically secured distributed ledger, including blockchain.

(3) DOMESTIC CURRENCY PRICE.—The term “domestic currency price” means a price denominated in United States dollars (USD) for any offer of a transaction where a price is given.

¹²⁰ GENIUS Act, § 2(6), (11), Pub. L. No. 119-27, 139 Stat. 419, 420 (2025).

(4) BIDDER.—The term “bidder” means an individual who offers money in an auction or other transaction where competing bids are solicited.

(5) The term “transaction” means any exchange or transfer of goods, services, or funds, including digital assets, for commercial purposes.

§ 2 REQUIREMENT FOR DOMESTIC CURRENCY PRICING FOR PRICES DENOMINATED IN CRYPTOCURRENCIES. Any offer of a transaction made to the public in a price denominated in a cryptocurrency must also include in at least equal, if not greater, size and prominence next to the cryptocurrency price, the equivalent domestic currency price based on the latest available information or conversion rate.

§ 3 REQUIREMENT TO MEMORIALIZE THE AMOUNT IN USD FOR BIDS. Any offer of a transaction to the public for which the displayed price is not fixed or final and the public can bid on the offer of a transaction in cryptocurrencies, the offeror must require the bidder to submit each bid first in USD. If the bidder makes a subsequent bid in cryptocurrency that does not match the bidder’s bid in USD, the offeror shall notify the bidder of the discrepancy and shall provide the bidder the opportunity to change the cryptocurrency bid to match the amount of the bidder’s bid in USD before it is finally submitted.

§ 4 ENFORCEMENT. The Federal Trade Commission is authorized to enforce this act under its powers granted under the Federal Trade Commission Act, including the issuance of orders, penalties, and commencement of civil actions for recovery of penalties, 15 U.S.C. §§ 41-58.

§ 5 NO PRIVATE ACTION. Nothing in this Act is intended to, or does, create a private right of action.

§ 6 EXCEPTION FOR PAYMENT STABLECOINS. This Act does not apply to qualifying payment stablecoins under the GENIUS Act whose value are equivalent to the U.S. dollar on a 1-to-1 ratio.

2. *Elements of Proposed Reforms: DCP and TOP USD*

Our two proposed reforms are (1) a requirement of domestic currency pricing (DCP) and (2) a requirement that a person type out the price of their bid in USD (TOP USD) where an offer of a transaction is denominated in cryptocurrency and bids are entertained in cryptocurrency. Both measures are designed to increase transparency in transactions denominated in cryptocurrencies and to mitigate the FVE.

a. DCP: Domestic Currency Pricing

In Section 2, our first proposal is a legal requirement that offers for transactions in cryptocurrency prices “must also include, in at least equal, if not greater, size and prominence next to the cryptocurrency price, the equivalent domestic currency price based on the latest available information.” In our experiment, the listing of prices of the past sale of the house in the Mountain House Scenario in both cryptocurrency prices and USD reduced the FVE, to some degree.¹²¹ This requirement would apply to any transaction offered to the public, whether online or offline, such as in a retail store. For all transactions, a simple rule applies: any price listed in cryptocurrency must be accompanied by the equivalent price in USD. And the USD price must be at least equal, if not greater, in size and prominence.

This modest intervention of domestic currency pricing likely would have helped to reduce the rampant speculation in non-fungible token (NFT) assets during the pandemic.¹²² It was—and still is—common for NFTs for digital art to be listed in only cryptocurrency prices or with a much smaller equivalent price in

¹²¹ See *supra* Part III.D.

¹²² See EDWARD LEE, CREATORS TAKE CONTROL 197–204 (2023) (discussing speculation in NFT market); Zaghun Uma et al., *Covid-19 Impact on NFTs and Major Asset Classes Interrelations: Insights from the Wavelet Coherence Analysis*, 47 FIN. RES. LETTERS 102725 (2022) (discussing growth of NFTs as asset class during pandemic).

USD.¹²³ Although the NFT market later crashed,¹²⁴ it provides a glimpse of what can happen when prices are listed in cryptocurrency without the USD price in equal prominence.

b. TOP USD: Requirement to Type Out the Price in USD

In Section 3, our second proposal applies to offers of transactions for which the final price is not fixed or final, and bids are allowed in cryptocurrency. Section 3 requires any such bidding to include first the person's bid in USD. This requirement builds on the effectiveness of a person's memorialization of a bid first in USD before giving any bid in cryptocurrency, as found by our study. For ease of reference, we call this requirement "TOP USD," meaning the consumer or investor must "type out the price" in USD they intend to pay.

Both DCP and the proposed TOP USD requirement for bids on proposed transactions in cryptocurrencies share the same purpose of increasing transparency in pricing as sought by recent legislative and regulatory efforts to require vendors of concert tickets and hotels to provide "all in" prices.¹²⁵

¹²³ See LEE, *supra* note 122, at 213–15 (discussing price displays for NFTs); see, e.g., *Pudgy Penguins*, OPENSEA, <https://opensea.io/collection/pudgypenguins> [<https://perma.cc/SA8Z-AHUX>] (collection page for Pudgy Penguin NFTs listing prices only in ETH); *Pudgy Penguin*, #4706, OPENSEA, <https://opensea.io/item/ethereum/0xbd3531da5cf5857e7cf9a92426877b022e612cf8/4706> [<https://perma.cc/RW4C-ZPMB>] (listing price for one Pudgy Penguin NFT much more prominently in ETH versus USD). For a study of the Top 25 NFT projects and their experimentation with licensing of use rights to owners, see Edward Lee, *Decentralized Collaboration Through Private Ordering*, 73 AM. U. L. REV. 67, 99–128 (2023); see also Edward Lee, *NFTs as Decentralized Intellectual Property*, 2023 U. ILL. L. REV. 1049, 1087–1112 (theorizing that NFTs were used as a form of decentralized intellectual property).

¹²⁴ See Henry Chandonnet, *The NFT Market Fell Apart. Brands Are Still Paying the Price*, FAST COMPANY (Apr. 30, 2025), <https://www.fastcompany.com/91324745/the-nft-market-fell-apart-brands-are-still-paying-the-price> (on file with Columbia Business Law Review); *NFT Market Crashes to 2025 Low as Year-End Rally Evaporates*, BITCOIN WORLD (Dec. 25, 2025), <https://bitcoinworld.co.in/nft-market-2025-low-crash/> (on file with Columbia Business Law Review).

¹²⁵ See *supra* notes 114–116 and accompanying text.

c. Enforcement

Section 4 authorizes the Federal Trade Commission to enforce the provisions under its existing authority under the Federal Trade Commission Act (FTCA).¹²⁶ Under the FTCA, “Any person, partnership, or corporation who violates an order of the Commission after it has become final, and while such order is in effect, shall forfeit and pay to the United States a civil penalty of not more than \$10,000 for each violation.”¹²⁷ Section 5 makes clear there is no private right of action. Enforcement rests with the FTC.

d. Exceptions to Requirements

We largely defer for future elaboration exceptions to the above requirements.¹²⁸ We envision the need for recognizing exceptions for some transactions, such as potentially an off-market sale or a transaction of negligible or minimal value (e.g., buying chewing gum). The one exception we include is an exception for qualifying payment stablecoins under the GENIUS Act whose value are equivalent to the U.S. dollar on a 1-to-1 ratio, meaning one stablecoin equals one USD. In our prior study, we found no FVE for one of two cryptocurrencies pegged close to the dollar at a value of \$1.01.¹²⁹ We do not see a need for either DCP or TOP USD when such payment stablecoins are used.

¹²⁶ 15 U.S.C. §§ 41-58.

¹²⁷ *Id.* § 45(l).

¹²⁸ We also do not think that a “sunset” provision is warranted, given the unlikelihood the United States will transition to cryptocurrency in the way that most EU members did with respect to the Euro. *See* Shobhit Seth, *Why 7 EU Countries Don’t Adopt the Euro Currency*, INVESTOPEDIA (Oct. 19, 2025), <https://www.investopedia.com/articles/investing/050515/why-these-european-countries-dont-use-euro.asp> (on file with Columbia Business Law Review).

¹²⁹ *See* Lee & Moshirnia, *supra* note 4, at 38–39. The other near USD equivalent cryptocurrency had a value of \$0.99 and resulted in underspending similar to the other weaker cryptocurrencies. *See id.* Although further study is needed, it is possible that subjects were more prone to round the cryptocurrency valued at \$1.01 to \$1 than the cohort assigned the cryptocurrency valued at \$0.99, which would explain the different result.

3. *Example of Application of Proposal*

To elucidate how our proposal would work, consider the example of a luxury car being sold in Bitcoin (BTC). The sticker price states: 1.2 BTC. Under Section 2's requirement of DCP, the car dealer must list the sticker price with the USD equivalent in equal prominence:¹³⁰

Price 1.2 BTC = \$104,725.

And, if the car dealership allows consumers to make offers on how much they are willing to spend to buy the car (instead of adopting a flat, "no hassle" price), Section 3's requirement of TOP-USD requires the car dealer to have the buyer type out the price (on a payment device) they are willing to pay in USD. For example, the buyer types out their offer, electronically or in print: "\$95,000." Had the buyer offered 1.1 BTC (\$95,995), it would have been \$995 more than what the buyer intended to offer.

D. *Future Study*

If cryptocurrencies are increasingly adopted for transactions in the United States, it is imperative for legislators, regulators, and researchers to examine both the existence of the FVE in such transactions and interventions that might mitigate it. This issue has escaped the attention of researchers and policymakers alike.

Although the calculator we used did not have a significant effect in reducing the FVE, for the reasons discussed above, the ineffectiveness could have stemmed in part from our design of the calculator, which asked for a value in cryptocurrency (which was converted into USD). A calculator that asks for a value in USD could be more effective in reducing the FVE by framing the focus on USD similar to the TOP USD approach. Likewise, a sliding scale that converts a range of U.S. dollar amounts into the respective cryptocurrency amount might yield more effective results. And these interventions can be combined with other interventions, such

¹³⁰ We used the conversion rate on Dec. 29, 2025, at 6:01 AM PDT. *See Bitcoin to US Dollar Exchange Rate Chart*, XE, <https://www.xe.com/en-us/currencycharts/?from=BTC&to=USD> [<https://perma.cc/XXN6-W3Z3>].

as domestic currency pricing and a person's designation of a bid in USD. We invite future study of other interventions not discussed here.

CONCLUSION

Through an online behavioral experiment simulating real estate investments, this Article confirmed the existence of the FVE with transactions made using cryptocurrency. Individuals overspend with cryptocurrencies whose values are stronger than a dollar due to anchoring on the nominal value rather than the real value of the cryptocurrency amount they are spending. More important, this study identified two interventions that mitigated the FVE: (1) for transactions offered in cryptocurrency prices, domestic currency pricing (DCP) that includes the U.S. dollar price equivalent to a price denominated in cryptocurrency, and (2) in cases involving bidding in cryptocurrency, a requirement that consumers and investors first type out the price in USD (TOP USD) they intend to pay. These simple measures—DCP and TOP USD—can be adopted by Congress in legislation or the FTC in a guidance or regulation, or voluntarily by businesses. Because the current debate over cryptocurrency legislation and regulation has failed to consider, much less address, the FVE, legislators and regulators should turn their attention to this serious problem. More transparency in pricing is better than less.