

Bounded Rationality in Currency Design and Status Effect in a Socialist Setting

by

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Abstract

This dissertation primarily examines two separate topics: evidencing the presence of boundedly rational behavior on currency designs and re-examination of extant status theory as applied to high-status actors in a socialist setting. The first two chapters address exchange rate illusion post currency redenomination policies and potential effects on the exchange rate movement. I show that redenomination policy that leads to significant changes in the currency quotation can lead to significant exchange rate depreciation. The last chapter is a joint work with my supervisor (Professor Rajiv Kozhikode) and Professor Rekha Krishnan. We re-examine extant status theory's central assumption that high-status actors are beneficiaries of biased evaluations of their audience. We find evidence in support of detrimental judgement for high-status firms in socialist settings.

The first chapter, entitled **Currency Redenomination and the Nominal Superiority Shock on Exchange Rates: A Time Series Analysis**, examines movements in exchange rates after redenomination. I find evidence of exchange rate depreciation of the currency with nominal superiority shock during the redenomination policy but not for currencies without the shock. The uniqueness in the exchange rate depreciation of the currency affected by the nominal shock is supported by an event study of neighboring currencies with no concurrent redenomination policy.

The second chapter, entitled **Evidencing Forex Illusion under Currency Redenomination: Experimental Approach**, is a follow up study on the empirical time series results obtained in the first chapter. This chapter examines the presence of a nominal illusion bias associated with nominal exchange rate and currency conversion decisions in an incentivized experiment. The results of the experiment support the presence of Forex Illusion further lending credence to the shift in currency demand and depreciation post redenomination.

The third chapter, entitled **Guilty Until Proven Otherwise: High Status and the Burden of Proof under Socialism**, we re-examine extant status theory's central assumption that high-status actors are beneficiaries of biased evaluations of their audience. We contend that, in socialist settings, high-status firms invoke a negative stereotype in the eyes of their evaluators. We find support for our theory in our analysis of the verdicts on lawsuits between commercial banks in India and their defaulting borrowers in the High Court of Kerala.

Keywords: Currency redenomination, Nominal illusion, Exchange rate, Forecasting, Causality, Status, Integrity, Stereotype, Halo, Capitalism, Socialism, Lawsuits, Kerala, Banks

Dedication

I dedicate this work:

In memory of my father and hero **Abdul-Salam Abubakar** for his everlasting love and immeasurable contribution to my education and upbringing.

To my mother **Nuratu Sumaila Abdul-Salam** for her continuous prayer, love, patience and motivation.

To my lovely wife **Samira Seidu** and son **Ahmed-Rufai Farouk Abdul-Salam** for their emotional support and source of motivation and strive.

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Quotation

“So, verily, with every difficulty, there is relief. Verily, with every difficulty there is relief.”

Surah Al-Inshirah: 5-6

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As the saying goes, a journey of a thousand miles begins with a single step. The single and most important first step of my PhD journey was the toughest challenge in my life. A few weeks into my PhD program, I lost my father and mentor to a tragic accident that occurred in Saudi-Arabia during the Hajj pilgrimage. This tragic event adversely affected my concentration and preparation for the upcoming PhD comprehensive entrance examination. However, with the able assistance of my colleagues, faculty members, staff, family and friends, I was able to navigate through this challenge successfully. I will like to take this opportunity to thank all those who assisted me through this journey.

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Chapter 1

Currency Redenomination and the Nominal Superiority Shock on Exchange Rates: A Time Series Analysis

A time series forecasting analysis is used to examine movements in exchange rates after currency redenomination. I find evidence of significant exchange rate depreciation of the currency with nominal superiority shock during the redenomination policy but not for currencies without the shock. The uniqueness in the depreciation of the currency affected by the shock is supported by an event study of neighboring currencies with no concurrent redenomination policy. Further evidence of the shock on the exchange rate is supported by a causality test which shows macroeconomic variables did not cause the depreciation.

1.1 Introduction

Currency redenomination happens when a country changes the nominal value of its currency. Redenomination, as it is commonly referred to, is mostly undertaken by adding or removing zeros from the existing currency with the latter being the most common. There are both economic and political reasons motivating a country to redenominate its currency (Mosley (2005)). A key economic factor is inflation (Euphrasia & Sri (2012)). Countries experiencing episodes of hyperinflation find it difficult to use their currencies due to large amounts of paper monies needed for smaller transactions. Furthermore, there is an induced accounting and computing difficulty with these currencies as smaller transactions are computed in higher denominations (see The-Herald-Sun (2008)). Under such difficult circumstances, affected countries often resort to redenomination to enhance convenience in their currency usage.

A closely related currency change policy to redenomination is the adoption of a new currency in an identified optimal currency region (i.e. OCR)¹ with the recent example been the introduction of the Euro. Both policies share similar implementation guideline where the new currency replaces the new currency. However, redenomination is starkly different from other currency adoption polices in terms of degree of usage, political motives and economic considerations. First, unlike OCR where a specified currency is chosen for certain group of countries in an identified economic zone with the new currency replacing all existing currencies of the group members, redenomination is mostly implemented by a single country and replaces a single currency. Second, whereas solidarity² among member countries in a region politically motivates the creation of a common currency, political events like regime changes rather leads to redenomination. Last, whiles ease in trade among members in OCR economically drives the adoption of a new currency, redenomination is primarily influenced by inflation.

Apart from the associated convenience in currency usage after the policy's implementation, other positive effects have been documented on the economy. For instance, inflation, the key economic factor for the adoption of redenomination policy, is significantly reduced after the policy. Using a panel setup with fixed effect, Erwin & Putu (2017) find a significant decrease in the estimated inflation of the redenominated countries. Another study by Libor & Michal (2015) of Turkey found a reduction in inflation after the currency redenomination. Given the reduction in inflation, theory predicts an appreciation in the redenominated currencies. A possible mechanism to explain this expected currency appreciation is the initial increase in real interest from the reduced inflation (Fisher (1896))³. With an increased real interest rate comes an increase in foreign investment with related increase in demand for domestic currency leading to a potential currency appreciation.

Based on insights from the nominal illusion literature⁴, however, the nominal effect of the redenomination policy on consumer behavior might undo the positive impact of the predicted exchange rate appreciation. The significance of this nominal effect is apparent in instances where the nominal exchange rate of these newly redenominated currencies become nominally expensive relative to a major international currency (i.e. nominal superiority gain). A case in point is the Ghanaian redenomination policy in July of 2007 that led to the removal of four zeros from the currency, Ghana Cedi. This removal of four zeros meant

¹See Mundell (1973) on the essence of common currency for a common economic zone.

²Optimistic comments by Wim Duisenberg (i.e. Governor of European Central Bank) and Joschka Fischer (German Foreign Minister) were expressed on the effect of the Euro towards fostering an European solidarity. This optimism of Euro effect on solidarity were later found to be non-existent in a study by Buscha *et al.* (2017)

³Fishers equation: real interest rate = nominal interest rate - expected inflation.

⁴See Shafir *et al.* (1997), Tversky & Kahneman (1988) , Fehr & Tyran (2001) and Petersen & Winn (2014)

a change in the nominal exchange rate of the Ghana Cedi relative to the USD⁵: from 9,298 old Ghana Cedi per USD to 0.9298 new Ghana Cedi per USD. With this change, the Ghana Cedi, a relatively poor performing currency from a developing economy, gained nominal superiority against the major trading and reserve currency (i.e. USD). That is, Ghana Cedi appeared expensive relative to the USD since less than a unit of the Ghana Cedi could buy 1 USD as a result of the redenomination policy. The exchange rate of the new nominal superior Ghana Cedi relative to the USD is displayed on figure-1.1.

Following the nominal superiority gained by the Ghana Cedi, nominal illusion theory predicts a strong tendency of changes in currency demand in this developing economy where the USD is widely accepted as a safer currency. The notion of USD being a safer currency in developing economies emanates from citizens losing the value of their domestic currency to factors like inflation and exchange rate depreciation⁶. Consequently, they hold as much USD as they can. Additionally, USD is constantly purchased and stored in developing economies because of import-dependence⁷ which requires substantial amount of USD. Thus, given the importance of USD and potential nominal illusion effect, the nominal superiority gains as seen in Ghana might affect consumers' currency demand. With USD now appearing cheaper, nominal illusion findings predict an increase in demand for the USD relative to the Ghana Cedi and a subsequent depreciation.

Unlike Ghana, other countries like Turkey, Zambia, Mozambique with past redenomination policies did not experience any change in their currencies' nominal superiority with the USD even though changes occurred in the nominal exchange rate quotations. Turkey, for instance, despite removing six zeros from their currency, did not gain nominal superiority in their new currency since the USD still appeared expensive in nominal terms (i.e. from 1,343,500 old Turkish Lira per USD to 1.3435 new Turkish Lira per USD). Table-1.1 provides a detailed description of the changes in the exchange rate quotations per USD after each of the redenomination policies as well as the nominal superiority shock breakdown.

Inference drawn from the few existing studies on the nominal illusion's impact on currencies and consumer behavior largely favors the nominal illusion hypothesis. For instance, Dzokoto *et al.* (2010) find evidence of money illusion in wake of the redenomination policy in Ghana. Their study found that consumers trivialize the nominally adjusted prices hence affecting their spending pattern. Additionally, by extending the nominal illusion to foreign currency and product evaluation, studies by Raghbir & Srivastava (2002) and Wertenbroch *et al.* (2007) find evidence to support the presence of nominal illusion on product valuation

⁵United States Dollar.

⁶Inflation as high as 32.93% in the year 2001 and average of 17.7% between 2001 and 2007 (IMF (2020)). Furthermore, the Ghana Cedi has constantly depreciated against the USD before the policy Dzawu (2019).

⁷Ghana has a constant negative trade balance before the implementation of the redenomination policy. OEC (2020)

in an experimental setting. Participants in these experiments gave their willingness to pay for a good based on the nominal value of the currency. Furthermore, in a related study, I find direct evidence to support the presence of exchange rate illusion in an incentivized multi-currency conversion decision experimental setting: see Abdul-Salam (Unpublished). More specifically, in an experiment where participants were tasked to optimally convert their endowed currency to alternative currencies, I find currencies with higher nominal exchange rate attracted higher demand.

Consistent with these opposing predictions from inflation reduction and the nominal illusion effect, the actual effect of currency redenomination on exchange rates remains mostly unsettled. The few studies on the direct effect of the redenomination on exchange rates do not find any evidence of redenomination affecting exchange rates. For instance, using a simple t-test, Euphrasia & Sri (2012) do not find any significant effect of redenomination on exchange rates. The study by Erwin & Putu (2017) also fails to find any significant change in the exchange rates post the redenomination policy. Further research on this topic has become pertinent given its unsettled effect on the exchange rate and widespread implementation in the recent past by various developing countries⁸.

In view of this, I extend the study of redenomination's impact on exchange rates using an efficient time series forecasting analysis with insights from nominal illusion findings. First, on the time series aspect, I fit a composite conditional mean and variance model on the exchange rates in forecasting the prospective exchange rates paths (i.e. counterfactuals). These forecasted exchange rates paths are both in terms of levels and volatilities. I then compare the forecasted values of the exchange rates to the realized exchange rates figures to examine their deviation. Second, an event study is conducted to examine if changes observed in a currency is unique to the redenomination policy. Last, a causality analysis is used to check if the observed changes in the exchange rates can be attributed to the other macroeconomic factors instead of the redenomination.

The approach I use in this paper offers some unique opportunities in cleanly identifying the true impact of the policy. First, using a relatively high frequency daily data coupled with efficient time series forecasting models, I get reliable forecast figures against which the realized exchange rate values can be compared. Second, the forecasting approach helps circumvents some strong assumptions needed for event study analysis⁹. Last, key intuition from the nominal illusion literature provides insights on the directions and mechanisms of the expected changes in the currencies affected by the nominal superiority shock.

The findings of this paper can be summarized into four main results. First, consistent with the nominal illusion prediction, I find a sharp and persistent depreciation in the

⁸From 2000 to date, over 15 countries have redenominated their currencies.

⁹An example been the parallel trend assumption for the difference-in-difference approach to event study which require all the currencies to aligned in their movement prior to the redenomination.

exchange rate of the redenominated currency with a nominal superiority gain (i.e. Ghana Cedi) with an associated increased level of volatility. Second, contrary to the Ghana Cedi, redenominated currencies without nominal superiority shock do not show any significant depreciation or change in volatility. Third, in the event study analysis, I find that countries surrounding Ghana (i.e. all the West African countries) with no concurrent redenomination policy did not experience depreciation in their currencies thereby proving the uniqueness in the depreciation of the newly redenominated Ghana Cedi. Finally, consistent with the Central Bank of Ghana's stance¹⁰ of no expected change in the value of the new currency and by extension no other major concurrent monetary policy changes, the results of the causality test fail to find any significant causation effect of key macroeconomic variables on the Ghana Cedi's depreciation.

The rest of the paper is organized as follows: Sections 1.2 and 1.3 discuss respectively the methodology and data used in the study. Section 1.4 presents the results of the currency changes and the causality effect of the macroeconomic variables on the exchange rate. Section 1.5 analyzes the robustness of the models used in the analysis. Section 1.6 concludes by examining the economic implication of the results and provides policy recommendation.

Redenomination Information					
Country	Redenomination Year	Transition Period (Months (m))	Number of Zeros Deleted	Old Rate Per USD (Rate Quotation)	New Rate Per USD (Rate Quotation)
A. Currency with Nominal Superiority Gain					
Ghana	2-Jul-2007	2-Jul to 31-Dec 2007 (6m)	4	9,298-GHC (Expensive USD)	0.9298-GHS (Cheaper USD)
B. Currencies without Nominal Superiority Gain					
Turkey	1-Jan-2005	1-Jan to 31-Dec-2005 (12m)	6	1,343,500-TRL (Expensive USD)	1.3435-TRY (Expensive USD)
Zambia	1-Jan-2013	1-Jan to 30-Jun-2013 (6m)	3	5,195-ZMK (Expensive USD)	5.195-ZMW (Expensive USD)
Mozambique	1-July-2006	1-Jul to 31-Dec-2006 (6m)	3	25,425-MZM (Expensive USD)	25.425-MZN (Expensive USD)

Table 1.1: [Description of Past Redenominated Currencies](#)

This table gives a detailed description of the past redenominated currencies used in this study. Ghana Cedi gained nominal superiority against the USD due to the redenomination whiles the other three currencies did not.

¹⁰The common theme for the redenomination carried out by the Central Bank in conjunction with the National Commission for Civic Education (NCCE) was: "there's no change in value; the value is the same".

Graph of Currency with Nominal Superiority Shock

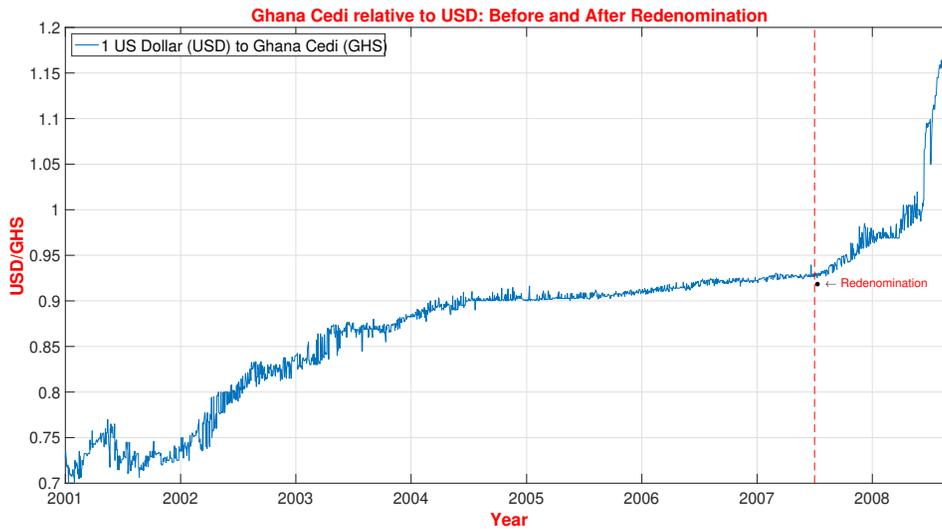


Figure 1.1: Movement of Cedi relative to USD before and after redenomination

1.2 Methodology

In this section, the time series models used in forecasting the exchange rates as well as the computational method used in defining the significant changes are tackled.

1.2.1 Model Selection and Forecasting

I use the composite conditional mean and variance model to generate the forecast levels of the various exchange rate series. Preference is given to this model primarily due to the autocorrelation and serial dependence nature of financial series like the exchange rates. Also, simple exchange rate models like the random walk and univariate models are found to be similar in terms of their short horizon prediction accuracy when compared to more sophisticated fundamental-based models (Meese & Rogoff (1983); Obstfeld & Rogoff (2000), and Rogoff 2001; Mark (1995)). Furthermore, issues of seigniorage under less stable political environment which leads to increased inflation and subsequent changes in the exchange rate path (see Cukierman *et al.* (1989)) did not affect choice of model since the political stability index remained stable both prior and post the policy.¹¹

Prior to selecting the final conditional mean and variance forecasting model, I follow standard procedures prescribed in the time series literature (see Box *et al.* (1970) and Enders (2008)). First, I examine the stationarity of the original exchange rate series. This is done

¹¹A structural change model to account for changes in political regimes will be ideal in the event of any change in ruling government. Data from Ghana shows that the same ruling government was in power between the period of the analysis (i.e. from January, 2001 to December, 2008)

with an initial ACF and PACF plots with further confirmation test using the Augmented Dickey-Fuller test (ADF; Dickey & Fuller (1979)) and Kwiatkowski-Phillips-Schmidt-Shin test (KPSS; Kwiatkowski *et al.* (1992)). Non-stationary exchange rate series are either differenced or detrended. Generally, the exchange rate series examined in this paper are non-stationary and integrated of order one (i.e. I(1)) with few exhibiting presence of trend with endogenously determined breakpoints.

After accounting for stationary, an ACF and PACF functions of the new stationary series is plotted in order to determine the suitable conditional ARMA¹² model. Additionally, the prospective lag orders from the plots are recorded. A final determination on the suitable model is made after comparing the values from the Bayesian Information Criterion (BIC; Schwarz *et al.* (1978)). Equation-1.1 gives the mathematical representation of the conditional mean model.

- Mean Component ARMA(P,Q)

$$y_t = c + \sum_{i=1}^P \phi_i y_{t-i} + \sum_{j=1}^Q \rho_j \epsilon_{t-j} + \epsilon_t \quad (1.1)$$

where c represents the constant term, y is the exchange rate, ϵ denotes the error term and both ϕ and ρ the parameters.

Last, in order to improve the accuracy of the inference, I examine the presence of autocorrelation and heteroskedasticity in the residuals of the selected models. Generally, I do not find autocorrelation even though most of the residuals are heteroskedastic. I correct for the heteroskedasticity in the residual terms by selecting¹³ among four conditional variance models: ARCH¹⁴ by Engle (1982), GARCH¹⁵ by Bollerslev (1986), EGARCH¹⁶ by Nelson (1991) or GJR¹⁷ by Glosten *et al.* (1993). Equation-1.2, equation-1.3 and equation-1.4 give the respective mathematical representation of the conditional variance models.

- Variance Component

$$\text{given } \epsilon_t = \sigma_t v_t$$

where σ represents standard deviation and v is a white noise process.

¹²ARMA stands for Autoregressive Moving Average.

¹³Conditional variance model is selected using the their AIC/BIC values.

¹⁴ARCH stands for autoregressive conditional heteroskedasticity and suitable for general volatility clustering.

¹⁵GARCH stands for generalized autoregressive conditional heteroskedasticity is an advanced of the ARCH.

¹⁶EGARCH stands for exponential generalized autoregressive conditional heteroskedastic and suitable for asymmetry clustering or the leverage effect.

¹⁷GJR name after the authors (Glosten-Jagannathan-Runkle) also corrects for asymmetry clustering.

- Respective Conditional Variances:

- GARCH(R,S)

$$\sigma_t^2 = \eta + \sum_{i=1}^R \alpha_i \sigma_{t-i}^2 + \sum_{j=1}^S \gamma_j \epsilon_{t-j}^2 \quad (1.2)$$

- EGARCH(R,S)

$$\log \sigma_t^2 = \eta + \sum_{i=1}^R \alpha_i \log \sigma_{t-i}^2 + \sum_{j=1}^S \gamma_j \left[\frac{|\epsilon_{t-j}|}{\sigma_{t-j}} - \mathbf{E} \left\{ \frac{|\epsilon_{t-j}|}{\sigma_{t-j}} \right\} \right] + \sum_{j=1}^S \zeta_j \left(\frac{\epsilon_{t-j}}{\sigma_{t-j}} \right) \quad (1.3)$$

- GJR(R,S)

$$\sigma_t^2 = \eta + \sum_{i=1}^R \alpha_i \sigma_{t-i}^2 + \sum_{j=1}^S \gamma_j \epsilon_{t-j}^2 + \sum_{j=1}^E \zeta_j \mathbb{1}[\epsilon_{t-j} < 0] \epsilon_{t-j}^2 \quad (1.4)$$

where α , γ , and ζ denotes the parameters on the respective variables.

The combination of the conditional mean and the conditional variance models yields the composite conditional mean and variance model used in forecasting the level of the exchange rate series. Also, the conditional variance model helps forecast the volatility in the exchange rate series. The forecasting procedure is implemented using two separate approaches: Monte Carlo (MC) simulation and the standard Minimum Mean Square Error (MMSE). Overall, the forecasting exercise helps predict with some degree of accuracy the path the exchange rate series should have taken in the absence of the redenomination policy.

1.2.2 Selecting Competing Models

The initial analysis of some exchange rate series shows that more than one suitable model qualifies for the forecasting exercise due to the closeness of their AIC/BIC values. Additionally, some of the exchange rate series qualify for both detrending and differencing under the stationary test. I consider exchange rate series with either of these features as series with competing models hence the need for further evaluation.

Consistent with standard practice, I run these competing models separately. First, models with close AIC/BIC values are subjected to a performance test. This is done by conducting in-sample fitness/prediction analysis test. I further examine them using the DM test (Diebold & Mariano (1995)). This test is suitable because it relaxes the normality and uncorrelatedness of the error terms assumptions under the F-test as well as allows for non-quadratic objective function (see Enders (2008)). A final model is then selected from these competing models based on their accuracy in prediction and the results from the DM test. Second, exchange rate series with evidence of trend are analyzed using two separate models (i.e. both detrended and differenced) and the results on each of the model

is separately reported. Refer to the third column of table-1.3, table-A.1 and A.2 for details of the final models selected for of the each exchange rate series.

1.2.3 Computing Changes in the Exchange Rate

I use a simple deviation from the forecasted path approach to compute whether a currency appreciated or depreciated after the policy. This approach as shown by equation-1.5 is computed using the percentage difference between the actual realized values of the exchange rate after the redenomination and the forecasted values from the composite conditional mean and variance model.

$$Deviation = \sum_{t=1}^n \frac{(x_t - y_t)}{x_t} \times 100\% \quad (1.5)$$

where x_t represents the actual realized values and y_t represents the forecasted rates.

Result with positive percentage difference is an indication that the realized values of the exchange rate are higher than what is expected hence a depreciation while a negative percentage difference indicates an appreciation. This equation is however used on only the differenced conditional mean and variance models. For the detrended conditional mean and variance models, I report the graphical deviation from trend between the forecasted values and the actual realized values.

Before making a final decision on whether a currency changed path, I visually examine the movement of the exchange rate to see if there is persistence in the deviation from the forecasted path. I do this additional check to prevent any extreme one-time spike from biasing the results. Persistence of movement in a particular direction strengthens the argument of deviation from its path and serves as an accurate depiction of a currency's appreciation or depreciation. Additionally, I statistically determine whether the perceived change is significant by constructing a confidence bound at 5% significance level for the forecasted path. Any persistent deviation that falls outside the confidence bound is deemed significant.

1.3 Data

Daily exchange rate figures from Thomson-Reuters-Eikon (2017) are used to examine the performance of all the currencies relative to the USD. The three time frames under review are pre-redenomination (i.e. before the policies implementation), transition (i.e. when both the old and newly redenominated currencies are accepted as legal tenders) and post-transition (i.e. when only the new currency is accepted as the legal tender).

For the purposes of the Ghana Cedi study and its uniqueness analysis (i.e. event study), the timing of the Ghana Cedi and other Neighboring West-African currencies remains the same. Furthermore, to study whether the effects of redenomination are influenced by a

nominal superiority shock, I compare the redenomination of Ghana to three redenomination exercises without nominal superiority, namely Turkey, Mozambique and Zambia. These three countries and their currencies are selected because of their similar features as Ghana (i.e. non-fixed exchange rate, timing proximity, and regional proximity). First, based on timing, both Turkey and Mozambique adopted their redenomination at about the same time as Ghana (i.e. Turkey had their policy in 2005 and Mozambique in 2006). Second, for the regional comparison basis, I use Zambia in addition to the already selected Mozambique since they are both situated in the Sub-Saharan region as Ghana. Table-1.2 provides a detailed description of the time frames and currencies under study.

Generally, data from the pre-redenomination period is used to generate both the forecast model and the forecast values for the transition period. Also, the post-transition redenomination forecast model and values are generated using both the pre-redenomination and the transition period data. Additionally, I use pre-redenomination data in forecasting the post-transition values in the presence of any significant changes in path during the transition period as these changes make the transition data less suitable for modeling the post-transition dynamics. This new estimate is called "combine" and can be seen on table-1.3 after the two main time periods (i.e. Transition and Post).

To further elaborate on table-1.2, Ghana for instance has an overall timeline ranging from January 2001 to September 2008. Of this date range, January 1st, 2001 to July 1st, 2007 marks the pre-redenomination period. For the transition period where both the new redenominated currency and old currency are used simultaneously as legal tenders, I use data from July 2nd to December 31st, 2007 which corresponds to the transition period in Ghana. The final time frame which falls between January 1st and September 14th,¹⁸ 2008 or May 30th, 2008 serve as the post-transition era. For forecast horizon, I choose 6 months (i.e. July-07:December-07) for the transition period and 5 months (January-08:May-08) for both the transition and post-transition period when there is a change in path during the transition analysis. In the absence of any significant change during the transition period, I use the 8.5 months (Jan-08:September-08) post-transition period for analysis of post-transition movements. In percentage terms, an average of 10% of the entire dataset is used in the forecast analysis for both the transition and post-transition period analysis.

¹⁸I truncate the post-transition forecast period at 14th September 2008 to avoid the uncertainty in the financial sector caused by the 2008 global financial crisis.

Exchange Rate Description and Timelines			
Currency (Countries)	Pre-Redenomination	Transition (Forecast Horizon)	Post-Transition (Forecast Horizon)
A. Currencies with Nominal Superiority Gain			
Cedi (Ghana)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08 1-Jan-08 to 30-May-08
B. Neighboring West-African Currencies Used for Event Study			
Naira (Nigeria)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
CEFA-XOF (Benin, Burkina Faso, Guinea-Bissau, Togo Ivory-Coast, Mali, Niger, Senegal)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
Escudo (Cape-Verde)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
Franc (Guinea)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
Dalasi (Gambia)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
Ouguiya (Mauritania)	1-Jan-01 to 1-Jul-07	2-Jul-07 to 31-Dec-07	1-Jan-08 to 14-Sep-08
C. Currencies without Nominal Superiority Gain			
Lira (Turkey)	4-Jan-00 to 31-Dec-04	4-Jan-05 to 30-Dec-05	2-Jan-06 to 28-Apr-06
Kwacha (Zambia)	1-Jan-07 to 31-Dec-12	1-Jan-13 to 28-Jun-13	1-Jul-13 to 31-Dec-13
Metical (Mozambique)	4-Jan-00 to 30-Jun-06	3-Jul-06 to 29-Dec-06	1-Jan-07 to 29-Jun-07

Table 1.2: [Data Description for the Exchange Rate Series](#)

This table shows the available data on exchange rate series and the respective time frames used in the analysis for the transition and post-transition redenomination analysis.

1.4 Results

In this section, I present the results of the analysis categorized into two subsections. First, I present the changes in both the exchange rate level and volatility of the Ghana Cedi which experienced nominal superiority gain against the USD after the redenomination policy. To further relate the uniqueness of the changes observed in the Ghana Cedi to the policy, I present the results of the non-redenominated currencies in the West-African region as of the same time the Ghana Cedi experienced the redenomination. Finally, I present the results of the other redenominated currencies with no changes in their nominal superiority against the USD. In the Second subsection, I present the results of the causality test carried out to check if other changes in the economic variables might have led to the depreciation instead of the hypothesized nominal superiority shock caused by the redenomination.

1.4.1 Currency Changes

Currency with Nominal Superiority Gain & Event Study

The results of this analysis as shown in table-1.3 and table-A.1 give a clear indication of the impact of nominal superiority shock on the exchange rate. First, under the transition period, the Ghana Cedi's exchange rate sharply depreciated just after the policy. This sharp depreciation can be seen both from the difference and detrended conditional mean and variance models displayed on figure-A.1 and figure-A.2 respectively. Using the percentage-difference formula from equation-1.5, the Ghana Cedi depreciates by a daily average of 1.34% and 1.39% above its forecasted path when the differenced conditional mean and variance model is applied. Additionally, by detrending the series and applying the conditional mean and variance model, the realized exchange rate trend significantly moves upward compared to the forecasted path further indicating a depreciation in the exchange rate.

During the same transition period, however, the currencies of the neighboring West-African countries with no concurrent redenomination policy are rather oscillating¹⁹ or insignificantly appreciating relative to their forecasted path. An exception is made in the case of Guinea Franc under the differenced conditional mean and variance model. I find an initial appreciation in the early stages of the transition period and depreciation thereafter. This subsequent depreciation in the series can be explained by the sudden break experienced in the series few months prior (i.e. April 2007). Using the second competing model detrended model to account for the breaks in the series, I find an oscillatory result for the Guinea Franc.

Second, in the post transition period, a consistent pattern of continuous depreciation in the Ghana Cedi can be observed. The Ghana Cedi depreciates by an average daily percentage of 4.71% and 5.05% above its forecasted path under the post transition period. Trend-wise, the actual exchange rate moves above the forecasted trend. Furthermore, given the significant break in path observed in the transition period, the new model (i.e. combine) displayed on figure-1.2 and figure-1.3 which uses only the pre-redenomination data also shows a significant depreciation (i.e. 3.95% and 4.2% with significant upward trend). On the contrary, there are no significant changes in the West African currencies relative to the USD.

In examining the uncertainty of the exchange rate via the volatility framework, I find an increased volatility in the Ghana Cedi's exchange rate. This increased volatility is evident in both the transition period and post transitional phase. A further analysis of uncertainty using data close to the policy date shows significant volatility increase. In contrast, most of the West African currencies experience a stable volatility in their exchange rates during

¹⁹(That is, movement up and down the forecasted path)

these periods. Figure-1.4 and figure-1.5 show the graphical display of the volatility under the difference and detrended models respectively.

The combination of a persistent depreciation and increased volatility of the Ghana Cedi in both the transition and post-transition periods give strong evidence to support the effect of currency redenomination on the exchange rate. Additionally, the lack of evidence of significant changes in the neighboring West-African currencies during the same period lends credence to the uniqueness of the depreciation observed in the newly redenominated Ghana Cedi.

1. LEVEL AND TREND GRAPHS²⁰

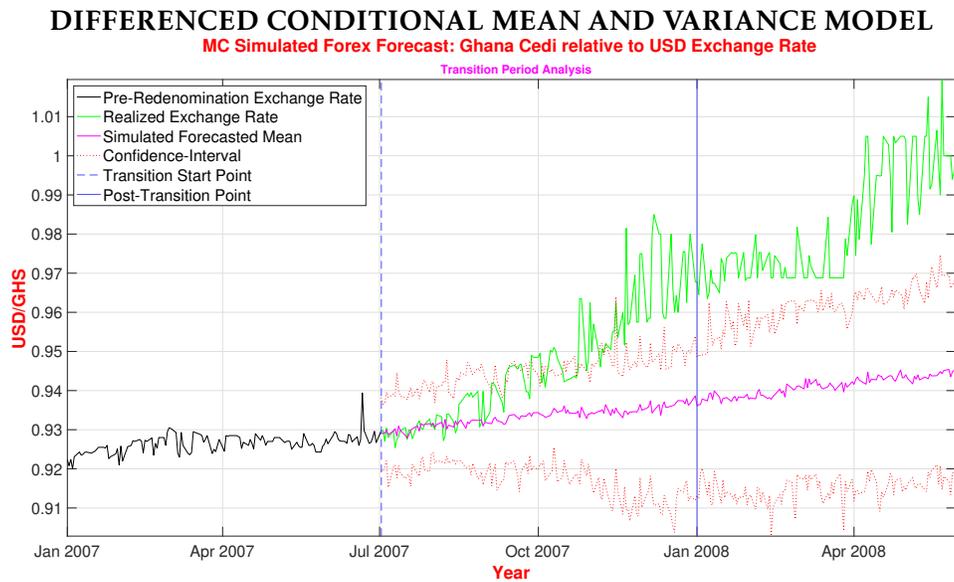


Figure 1.2: Level Movement: Cedi vs USD: Truncated (Jan-2007 to May-2008)

²⁰The graphs (i.e. figures 1.2,1.3, A.1 and A.2) have been truncated for better visualization of the exchange rate movement after the policy. The original starting point is January-2001. The truncation does not affect the results in anyway.

DETRENDED CONDITIONAL MEAN AND VARIANCE MODEL

MC Simulated Forex Forecast: Ghana Cedi relative to USD Exchange Rate

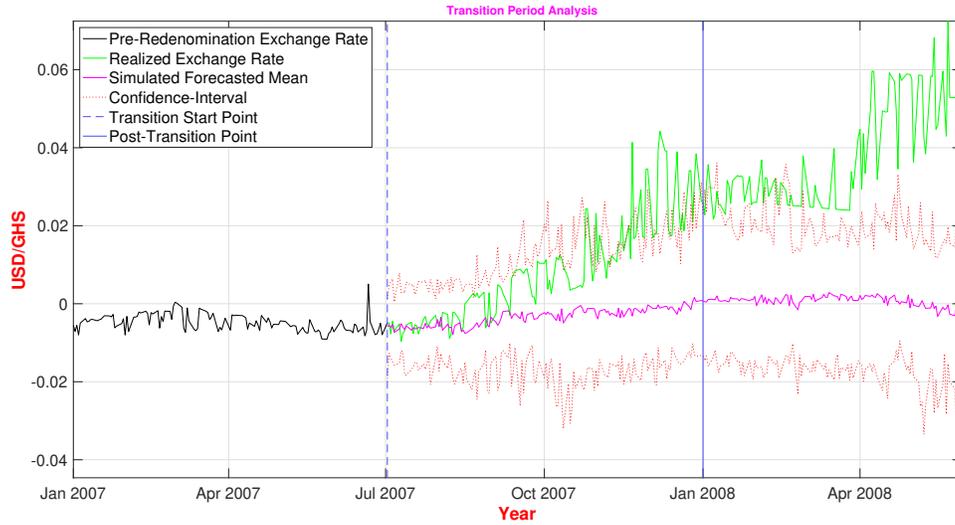


Figure 1.3: Level Movement: Cedi vs USD: Truncated (Jan-2007 to May- 2008)

2. VARIANCE/VOLATILITY GRAPHS

DIFFERENCED: CONDITIONAL VARIANCE MODEL

MC Simulated Conditional Variance of Ghana Cedi relative to Cedi

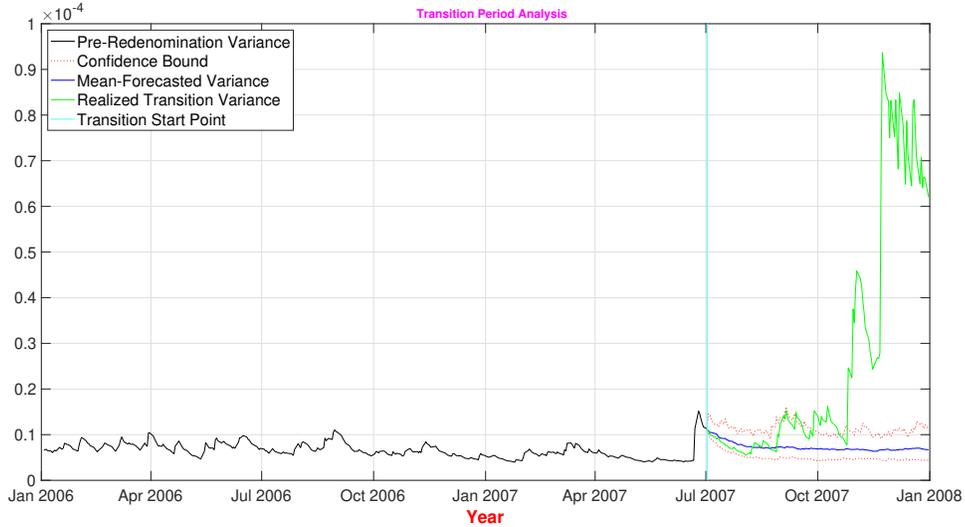


Figure 1.4: Volatility (Differenced): Cedi vs USD (Jan-2006 to Dec-2007)

DETRENDED: CONDITIONAL VARIANCE MODEL

MC Simulated Conditional Variance of Ghana Cedi relative to Cedi

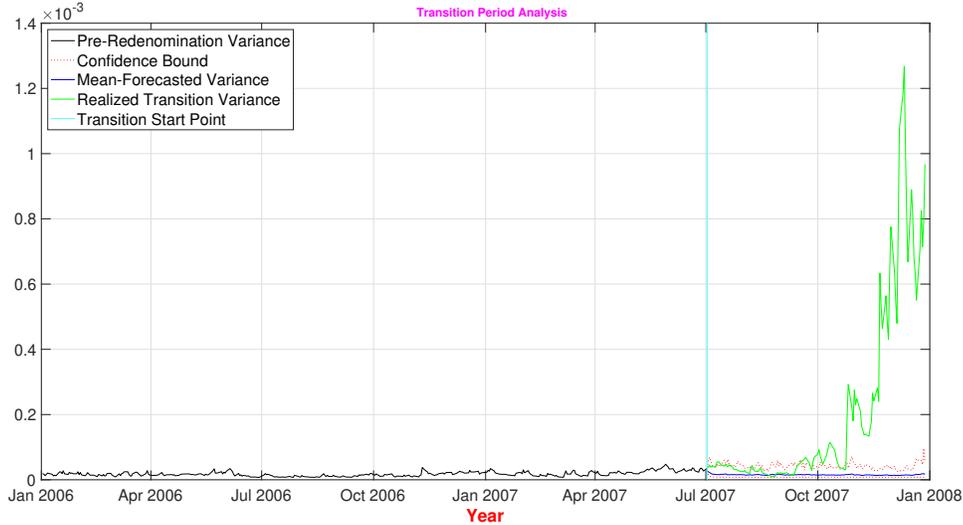


Figure 1.5: Volatility (Detrended): Cedi vs USD (Jan-2006 to Dec-2007)

Result 1: Exchange Rate of Ghana Cedi Currencies relative to USD

Currency	Stationarity	Final Model	Period	Forecast	Level:	Volatility
Ghana (Cedi)	Differenced I(1)	ARIMA(0,1,[1,3])GARCH(1,1)	Transition	MC	Depreciation (1.39%**)	Increased
				MMSE	Depreciation (1.34%**)	
			Post	MC	Depreciation (5.05%**)	Increased
				MMSE	Depreciation (4.71%**)	
			Combine	MC	Depreciation (4.2%**)	Increased
				MMSE	Depreciation (3.95%**)	
	Detrended (Breakpoints) 1.(5/23/2002) 2.(11/27/2003)	ARIMA(1,0,1)GARCH(1,1)	Transition	MC	Upward Trend**	Increased
				MMSE	Upward Trend**	
			Post	MC	Upward Trend**	Increased
				MMSE	Upward Trend**	
Combine			MC	Upward Trend**	Increased	
			MMSE	Upward Trend**		

Table 1.3: Result of Ghana Cedi vs USD

*This table summarizes the results obtained from the analyses of the Ghana Cedi relative to USD both in the transition and post-transition period. I(1) under the stationarity column represents the integration of order one whiles the breakpoints shows the endogenously determined dates of break in movement of the currency. The respective lag orders for the conditional mean and variance are shown in the Final Model column. (**) represents the 5% level of significance.*

Non-Nominal Superior Redenominated Currencies

To strengthen the nominal superiority hypothesis espoused in this paper, I go a step further to analyze the currencies with redenomination experience in the recent past. The results of this analysis displayed on table-A.2 show some interesting findings and can be summarized in three key points. First, consistent with the nominal changes in the exchange rates, I find a slight depreciation in all the currencies during the transition period. However,

the depreciation rates in the currencies were insignificant. Second, no significant change is observed when the new currency became the only legal tender in the post transition period. Last, the volatility in these exchange rates remain stable. Overall, the results from this sub-section further validates the nominal superiority shock hypothesis as none of these currencies (i.e. without the nominal superiority shock after the policy) experienced significant depreciation.

1.4.2 Causality Test on Macroeconomic Variables

Using the Granger-causality test (Granger (1969)), I examine key macroeconomic variables known to theoretically have an impact on the exchange rate movements (see Krugman *et al.* (2017)). This analysis is to help ascertain whether the changes observed in the Ghana Cedi came from these variables instead of the hypothesized nominal superiority shock effect. I sample the monthly frequency variables from Thomson-Reuters-Eikon (2017) starting from the year 2001 to 2008. To establish the true causality effect, a two-period analysis is conducted. First, I examine the historical (i.e. pre-redenomination) relationship and causality between the variables and the exchange rate using data from January 2001 to June 2007. This historical analysis helps explain any past sensitivity of the Ghana Cedi's exchange rate to the changes in macroeconomic variables. Second, using the entire dataset, an overall analysis is conducted to examine the effect of the variables on the exchange rate as of the time of implementing the redenomination policy.

To commence the causality test, I check for the stationarity property of the variables as required. As typical with macroeconomic variables, the variables are found to be non-stationary. In view of the non-stationary nature of the variables, I examine the cointegrated relationship between the variables and the exchange rate (see Johansen (1995)). In the presence of any cointegration, a suitable Vector Error Correction model (i.e. VEC) is fitted and a modified Granger-causality test by Toda & Yamamoto (1995) conducted on the estimated VEC model. In the absence of any cointegration, however, the variable is differenced to ensure stationarity and a Vector Autoregression model (i.e. VAR-in-difference model) estimated. A standard Granger-causality test is then conducted on the VAR-in-difference model. Finally, an ideal lag value (2 lag orders which is equivalent to two months) is chosen to efficiently determine for the macroeconomic variables in order to ascertain how their past movement might have affected to the changes in the exchange.

The results of this causality analysis displayed on table-1.4 show that none of the macroeconomic variables Granger-causes the Ghana Cedi exchange rate movement. The results hold true both historically (i.e. before implementation of the policy) and during the policy's implementation. This further proves that the depreciation of the redenominated Ghana Cedi is due to the nominal superiority shock caused by the redenomination and not changes in the economic fundamentals.

Causality Analysis

Macroeconomic Variable	Timeline (Before & After Redenomination)	Cointegration (Model)	Lag Order	Observation	Hypothesis \Rightarrow (not Granger Cause)	P-value	Decision
Inflation	Before	No Coint. (VAR-in-diff.)	2	78	$Inflation \not\Rightarrow Exc.Rate$	0.3790	Fail to Reject
	Overall	No Coint. (VAR-in-diff.)	2	89		0.3003	Fail to Reject
International Reserve	Before	No Coint. (VAR-in-diff.)	2	64	$Resevres \not\Rightarrow Exc.Rate$	0.0503	Fail to Reject
	Overall	Yes Coint. VECM	2	70		0.3778	Fail to Reject
Interest Rate	Before	Yes Coint. VECM	2	66	$Int.Rate \not\Rightarrow Exc.Rate$	0.6782	Fail to Reject
	Overall	No Coint. (VAR-in-diff.)	2	77		0.8017	Fail to Reject
Money Supply	Before	Yes Coint. VECM	2	66	$MoneySup. \not\Rightarrow Exc.Rate$	0.9655	Fail to Reject
	Overall	No Coint. (VAR-in-diff.)	2	77		0.7449	Fail to Reject
Trade Balance	Before	No Coint. (VAR-in-diff.)	2	42	$TradeBal. \not\Rightarrow Exc.Rate$	0.1939	Fail to Reject
	Overall	No Coint. (VAR-in-diff.)	2	53		0.3228	Fail to Reject

Table 1.4: Causality Analysis

This table gives a detailed description of causality analysis of the Ghana Cedi's exchange rate with respect to five key macroeconomic variables. At 5% level of significance, none of the macroeconomic variables Granger-caused the changes in the Ghana Cedi exchange rate. Also, there is lack of evidence to support historical Granger-causality effect of these variables on the exchange rate. "Coint." from the 3rd column of the table stands for cointegration and "Exc.Rate" on the 6th column stands for exchange rate.

1.5 Robustness Checks

To assess the robustness of the chosen models used in the forecasting analysis, I conduct three different robustness tests. First, I examine prediction accuracy of the model prior to the redenomination period. To test this, I reserve 10% of the in-sample data (i.e. from 6th November, 2006 to 29th June, 2007). I then use the generated conditional mean and variance model to forecast the in-sample data path. A comparison between the reserved in-sample data and the forecast figures is then made. The result of the performance test on the ARIMA-GARCH model for the Ghana Cedi relative to the USD is remarkably good in its predictive accuracy: only 0.6% deviation of the actual from forecasted path.

Second, I examine the normality assumption of the final standardized residuals. This test is done by plotting the kernel density and normality graphs of the standardized residuals of the selected conditional mean and variance model. Furthermore, I check for the non-serial correlation assumption of the final standardized residuals by plotting the ACF and PACF graphs. The results of the robustness checks displayed on figures-1.6, figure-1.7, figure-

A.3 and figure-A.4 show that the models meet the normality and non-serial correlation requirements.

Third, I study the movement in the Ghana Cedi relative to the second major trading currency (i.e. Euro). This is a relevant currency to test the nominal superiority assumption as the Ghana Cedi did not gain any nominal superiority relative to the Euro (i.e. 1.266 Ghana Cedi per Euro). As postulated, the analysis finds an upward insignificant changes in the exchange rate path of the Ghana Cedi to the Euro during the transition and post transition. This insignificance in the movement could be explained by the closeness of the new currency to the nominal superior point.

Diagram of ACF/PACF plots

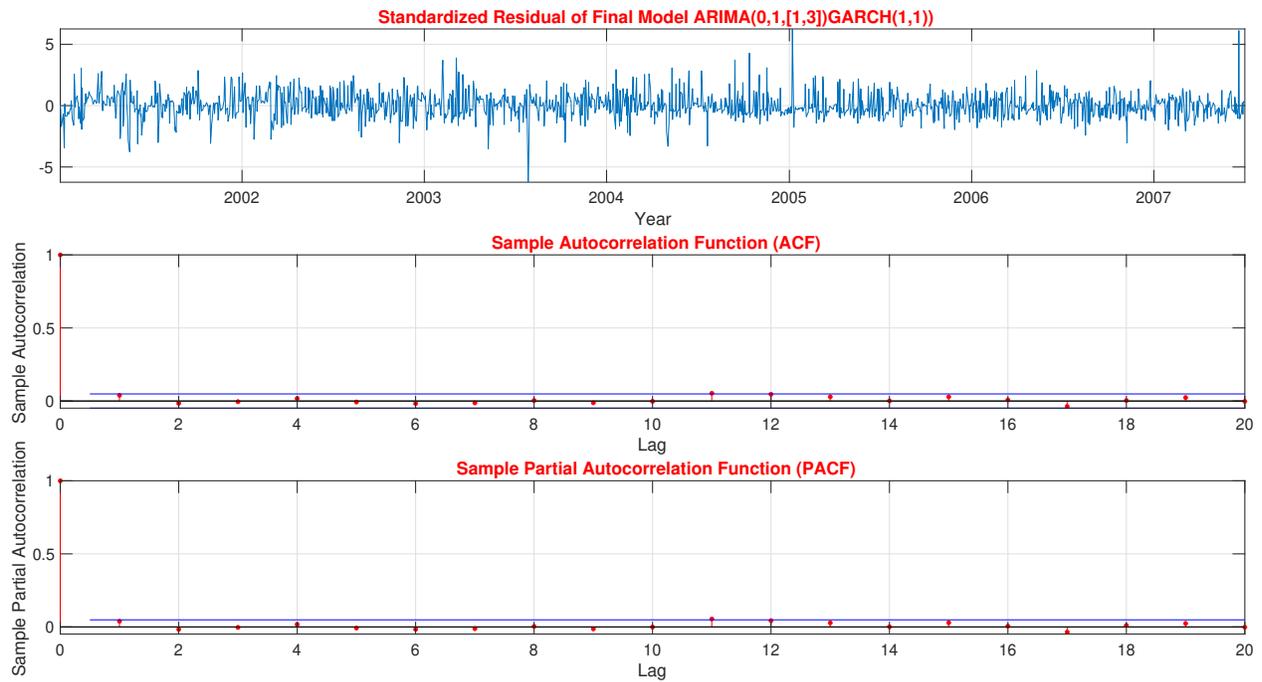


Figure 1.6: Diagram of ACF/PACF Plots

Diagram of QQ and Normality plots

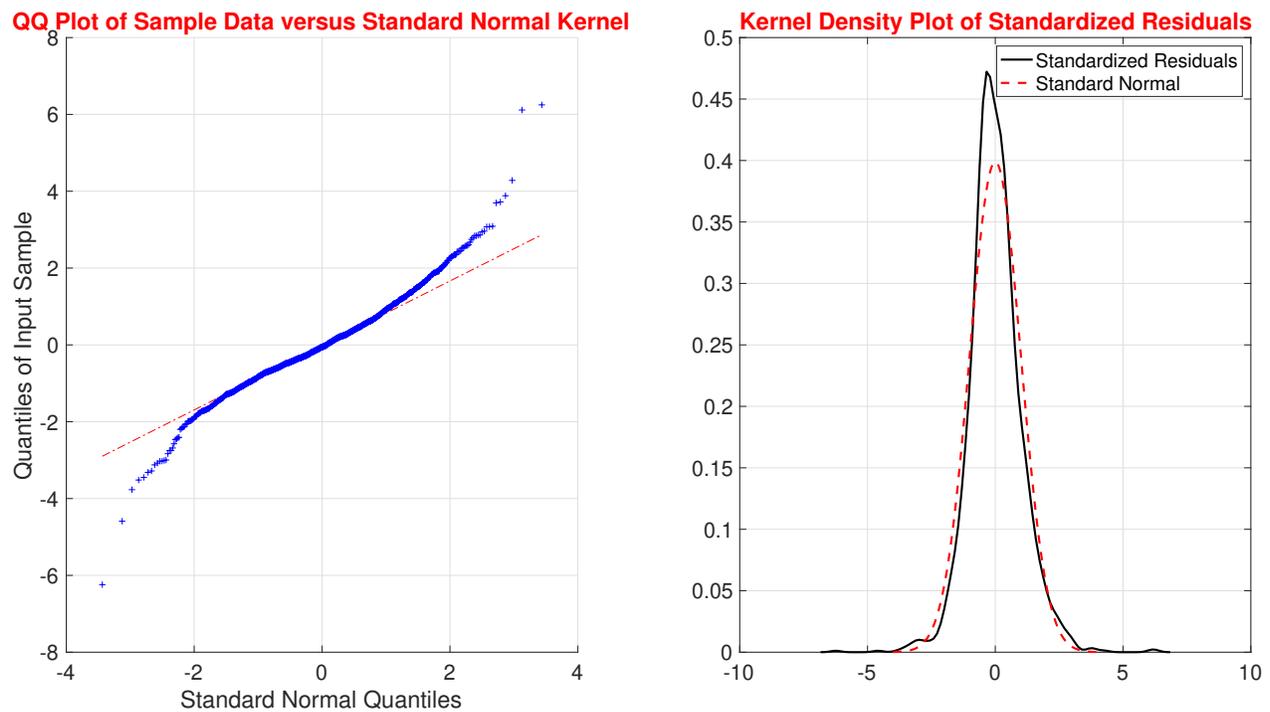


Figure 1.7: Diagram of QQ and Normality plots

1.6 Conclusion

In this paper, I examine the impact of currency redenomination and its associated nominal superiority shock on exchange rates using a time series forecasting approach with insights from nominal illusion literature. Using daily exchange rates of redenominated currency with nominal superiority gain (i.e. Ghana Cedi relative to the USD), I find evidence in support of exchange rate depreciation coupled with an increased volatility.

To further support the nominal superiority shock findings, I conduct three separate tests. First, I examine three different redenominated currencies without nominal superiority gains to the USD. These currencies are selected based on their shared experience with Ghana (i.e. timing of the policy, non-fixed exchange rate policy and regional proximity). As postulated, my analysis shows no significant change in their exchange rates.

Second, I examine the uniqueness in the depreciation of the Ghana Cedi's exchange rate during the redenomination by analyzing the exchange rates of its neighboring West-African currencies with no concurrent redenomination policies. This further regional analysis is to help ascertain whether any regional exchange rate shock might have been the contributing factor instead of the hypothesized nominal superiority shock caused by the redenomination. Contrary to the depreciation of the Ghana Cedi, this event study shows that none of the

regional currencies experienced any significant depreciation against the USD. Furthermore, unlike the increased volatility seen in the Ghana Cedi, these regional currencies were mostly stable. The outcome of this regional currency analysis further strengthens the argument that the changes observed in the Ghana Cedi's exchange rate are not regional but rather unique to the redenominated Ghana Cedi.

Third, to further ensure that the depreciation of the Ghana Cedi is specifically related to the redenomination policy, I conduct a causality test using the VAR/VECM and Granger-causality test on key macroeconomic variables which may contribute to changes in exchange rates. This causality test shows that none of macroeconomic variables caused the changes in the exchange rate during the redenomination. Also, the announcement and sensitization effort by the Central Bank of Ghana indicates no implementation of simultaneous policies during the redenomination as the value of the currency was expected to remain unchanged.

These results further lend credence to the effect of redenomination and its associated nominal superiority gain on the exchange rates. The importance of the result cannot be overlooked given the number of countries adopting the redenomination policy. Ironically, inflation (i.e. the primary economic reason for adopting currency redenomination) might be worsened given the associated depreciation of the currency that accompanies the redenomination policies with nominal superiority shock. This could be the case especially for import dependent economies since a depreciated currency could lead to higher cost of import thereby increasing the cost of commodities. Furthermore, an increase in the nominal interest rate level might arise in wake of increased inflation and less available capital which further slows down the economy. Last but not least, a depreciated currency might lead to currency crisis and capital flight thus reducing foreign investment.

Considering the potential negative consequences of the nominal superiority shock associated with redenomination²¹, it is worthwhile for prospective countries to analyze possible behavioral implications of the redenomination policy prior to its implementation. Interested countries should consider the appropriate number of zeros to delete or add by juxtaposing their currency to a major trading currency to prevent the nominal superiority shock seen in Ghana (i.e. using the USD as a reference point). This will help reduce the impact of currency demand as predicted by the nominal illusion findings.

In hindsight, a policy recommendation which would have helped prevent the nominal superiority shock and subsequent depreciation of the Ghana Cedi would have been a reduction of at most 3 zeros instead of the 4 zeros. With 3 zeros off the currency, the exchange rate would have changed from 9,298 Ghana Cedi per USD to 9.298 Ghana Cedi per USD preventing nominal superiority shock. This recommended change, however, might lead to a marginal increase in transaction cost with regards to the amount of currency needed for daily transactions.

²¹Currency depreciation, increased inflation, increased interest rate, and capital flight

Chapter 2

Evidencing Forex Illusion under Currency Redenomination: An Experimental Approach

This paper examines the emergence of foreign-exchange illusion following a currency redenomination policy. To study this nominal bias, I conduct an incentivized experiment where participants make currency conversion decisions that determine their demand for goods in two economies. Across participants, I vary the nominal exchange rate and price level. The demand for foreign exchange depends significantly on the relative price level between the two economies, with relatively high prices attracting greater demand for that economy's currency. Consistent with foreign exchange illusion, participants with a lower nominal exchange rate convert significantly less of their currency compared to their counterparts with high nominal exchange rate regardless of the price level.

2.1 Introduction

Currency redenomination is the process where a country changes the nominal value of its currency. This is typically done by adding or removing zeros to existing face values of a country's currency. Countries mostly redenominate their currencies to alleviate the transactional challenges associated with earlier hyperinflation episodes (Mosley (2005)). These challenges include the need for large amount of paper money for smaller transactions leading to increased risk (i.e. theft) and accounting difficulties¹. Furthermore, such currencies lose their value and appeal on the international front due to persistent depreciation.

Faced with these difficulties, central banks resort to currency redenomination policy through the removal of excess nominal figures from their currency. Such a policy is believed to make the currency more appealing since fewer banknotes and coins are necessary for

¹Imagine buying a meal or 3 eggs and paying in billions (The-Herald-Sun (2008))

transactions. Ghana, Turkey, Zambia, Mozambique, Mauritania and Zimbabwe are among the numerous countries to have implemented the currency redenomination policy since 2000.

Behaviorally, however, currency redenomination can give rise to the possibility of nominal bias. Studies have shown that nominal changes have the tendency of influencing individual's behavior². On currency redenomination for instance, Dzokoto *et al.* (2010) find evidence to support the presence of money illusion after the policy's implementation in Ghana. Additional evidence on the introduction of new currencies and money illusion can be found in studies by Bittschi & Duppel (2015), Cannon & Cipriani (2006) and Amelia *et al.* (2002). Also, empirical findings by Židek & Michal (2015) and Karnadi & Adijaya (2017) show changes in price fluctuations (i.e. inflation) due to currency redenomination.

On the foreign exchange market front, redenomination automatically leads to an adjustment to a new nominal exchange rate of the redenominated currency. With these adjustments, the potential of emergence of nominal bias on the foreign currency demand (i.e. forex illusion) is imminent especially in partially-dollarized economies where USD and other foreign currencies are held for import and inflation reasons. For instance, the currency redenomination of the Ghana Cedi meant the nominal quotation of the Ghana Cedi to the USD had to adjust from 9,298 Old Ghana Cedi per USD to 0.9298 New Ghana Cedi per USD. With this substantial nominal change, the Ghana Cedi which is a historically poor performing currency relative to USD, has now gained a nominal superiority against the USD since the USD can be purchased with less than a unit of the Ghana Cedi in nominal terms.

With the valuable USD now appearing cheaper, the nominal illusion hypothesis is that economic agents will increase their demand for USD, thereby leading to its appreciation and subsequent depreciation of the domestic currency (Ghana Cedi). In a time series analysis of exchange rate movements of the Ghana Cedi relative to the USD after the redenomination, I find evidence of substantial depreciation of the Ghana Cedi further lending credence to the hypothesized currency demand changes (Abdul-Salam (Unpublished)).

To validate this hypothesis behaviorally, I investigate for the first time in an incentivized experimental setup the presence of foreign currency illusion (i.e. forex illusion) in an agent's decision. To examine this forex illusion, I primarily design an experiment capable of testing the validity of homogeneity of degree zero (HODZ) assumption in prices and exchange rates. That is, with equal changes in prices and exchange rates, optimization behavior should remain unchanged. Data collected from the optimization decision of the various nominal treatment groups are analyzed to examine any deviation from the optimization point and

²See Kahneman *et al.* (1986), Shafir *et al.* (1997), Fehr & Tyran (2001), Cannon & Cipriani (2006), Fehr & Tyran (2007), Fehr & Tyran (2008), Brunnermeier & Julliard (2008), Schmeling & Schrimpf (2011), Petersen & Winn (2014), and Yamamori *et al.* (2018)

potential violation of the HODZ assumption. Instances where participants are swayed by their respective nominal exchange rate values from the optimal point as well as differences in their respective decision points is deemed as violation of the HODZ assumption hence forex illusion.

The contribution of this paper is to provide causal evidence that redenomination has important implications for the relative demand for currency. I assess the currency demand in a multi-currency laboratory setting where participants are asked to make currency holding decisions under various nominal currency quotations. These currency decisions automatically determine how much a person buys in domestic and foreign markets.

I experimentally vary the decision environment along two key dimensions. First, I vary the addition and removal of zeros to the domestic currency to assess the effects of redenomination on the relative demand for domestic currency. Second, in these high (i.e. addition of zeros; high rate) and low (i.e. removal of zeros; low rate) nominal exchange rate regimes, I also vary the posted prices in the domestic market relative to the foreign market. Along these 4 different treatment variations, I explore the robustness of forex illusion by further varying the uncertainty about prices and the exchange rate when making a spending decision. These variations are consistent and realistic scenarios faced by consumers in these partially-dollarized economies.

Under the forex illusion hypothesis, participants presented with low nominal exchange rates (LNER henceforth) are predicted to convert less of their domestic currency to purchase the foreign currency relative to their counterparts presented with high nominal exchange rates (HNER henceforth). This prediction is consistent with the nominal illusion findings where higher nominal values might be associated with higher payoffs thereby attracting higher conversion rate. The experimental findings are consistent with this theoretical prediction as well as correspond to the empirical observation in the movement of the Ghana Cedi exchange rate. Overall, LNER participants convert less of their domestic currency compared to their HNER counterparts. The lower conversion rate in the LNER treatment can be inferred as depreciation in the low nominal rate currency.

The rest of the paper is organized as follows. Section 2.2 briefly discusses existing research on nominal illusion and currency demand, Section 2.3 presents a model designed to understand how forex illusion can emerge in participants' spending decisions as well as the layout of the experimental design, Section 2.4 presents the results of the experiment, and Section 2.5 concludes by discussing the economic implication of the result with some policy recommendations.

2.2 Literature Review

Money illusion is a long-studied phenomenon about the effects of nominal framing on economic decision-making (Fisher (1928)). Particularly, it is the idea that economic agents

consider nominal irrelevant factors when making decisions. Skepticism surrounding this topic has been significant given the standard assumption in economics where agents are assumed to be rational. Growing empirical and experimental evidence however support the nominal illusion's assertion.

Some of the earliest evidence of money illusion was observed by Shafir *et al.* (1997). Their survey experiment found that nominal values play an important role in agents' hypothetical valuations of economic transactions. Fehr & Tyran (2001) advanced the study of money illusion with an incentivized experimental design. Their study comprised of both direct (i.e. individual level money illusion) and indirect (others' money illusion) levels of money illusion. Using two main payoff setups (real vs nominal and computer vs human in terms of opponents), the authors concluded that even though the direct level was minimal, its effect in generating aggregate nominal inertia under negative shock could be substantial. In a follow up study, Petersen & Winn (2014) found limited evidence of individual level money illusion even though they found support for higher order money illusion. Extending nominal illusion to an inter-temporal decision setting, Yamamori *et al.* (2018) found evidence in support of this behavioral bias where agents savings decision were significantly affected by the nominal values. It is worthwhile to note that recent studies have proposed opposing explanations instead of money illusion in agents' irrational decision (Grundmann *et al.* (2019))³.

Few studies have advanced this nominal bias to foreign currency and product valuation. Raghubir & Srivastava (2002) for instance, investigated the effects of nominal quotation on participants' product evaluation. Within an in-class experiment, the authors presented students with a product and ask for their hypothetical willingness to spend under various nominal currency settings. Notably, students were only able to give their hypothetical willingness to pay in a single currency at any point in time hence limiting their ability to make simultaneous currency demands. The results of their study showed that students presented with higher nominal currency quotations exhibit a lower willingness to pay. Wertebroch *et al.* (2007) extended the study by Raghubir & Srivastava (2002) through the introduction of salient budget constraints. They found an opposing result to Raghubir & Srivastava (2002): high nominal quotations increased students' willingness to pay. Finally, Amelia *et al.* (2002) found mixed results as participants in one study deemed products as less expensive when currency quotation is in larger units and vice-versa in another experiment.

Unlike the existing studies with the contrasting findings on the product and currency valuation setting, the objective of this paper is to examine for the first time an experimental setting the direct effect of nominal exchange rates on currency demand. In that respect, the

³Using a wage with gift-exchange setting, the study found that participants' decision on nominal values can be explained by intention rather than hypothesized nominal illusion.

experimental design and inference from this study varies significantly from the existing studies. First, I consider the coexistence of multiple currencies whereby participants can purchase goods in either or all currencies given a clearly specified budget constraint. This setting better describes the challenges facing consumers in partially dollarized economies and can shed light on foreign currency demand decisions. Second, the price of a good is not subjected to participants' willingness to pay but rather an objective posted price which all participants adhere to. With the introduction of an objective posted price, I assess participants' decisions relative to the optimal demand. Third, participants in this experiment face an incentive-compatible budgeting decision instead of a hypothetical setting. Fourth, I explore robustly the effects of uncertainty in prices and exchange rates on currency demand decisions, both of which are realistic challenges facing consumers in partially-dollarized economies. Taken together, the experimental design allows for direct inference about the effects of redenomination on currency demand.

2.3 Theoretical Prediction and Experimental Design

In this section, I design a laboratory experiment to identify and understand the robustness of forex-illusion across different nominal frames and information contexts. Using a standard microeconomic assumption, I also outline how rational and nominally biased economic agents should respond to nominal changes in exchange rates. Finally, I present the hypothesis to be examined as well as the statistical test used under each hypothesis.

2.3.1 Experimental Design

A currency demand experiment where participants make conversion decisions given nominal exchange rates and prices of goods is designed using a constant elasticity of substitution utility function (CES utility henceforth). A CES utility henceforth is chosen for this design primarily due its diminishing marginal returns property. The diminishing returns property encourages diversification of a currency portfolio to maximize payoff. CES utility function is also simple to understand and implement in an experiment.

The CES utility induced in this experiment comprises of two separate but identical goods (i.e. Good A and Good B) which can be purchased using the associated currencies. That is, in order to purchase Good B, participants must convert their original currency holding which is issued in currency A to currency B. This intra-temporal maximization decision participants make can be summarized as follows:

$$\begin{aligned}
 & \underset{A,B}{\text{maximize}} && U(A,B) = A^{\rho} + B^{\rho} \\
 & \text{subject to} && P_A A + \frac{P_B}{E} B \leq M_A,
 \end{aligned} \tag{2.1}$$

where A and B represent the demand for Good A and Good B , P_A and P_B represent prices of Good A and Good B respectively, E represents the nominal exchange rate of currency A to currency B , and M_A represents the initial currency endowment issued in currency A .

Consistent with this theoretical framework, the experiment is primarily designed to collect the key Good A and Good B maximization variables. These variables are however related to the participants currency holding. That is, using their initial currency endowment issued in currency A , participants are tasked to first make a currency conversion decision which will determine the amount of Good A and Good B to purchase as well as their points.

The experimental design combines both within and between participants variation to understand how nominal exchange rate framing and information influence the demand for currency. Each participant makes five independent currency decisions under a given nominal exchange rate and relative price level. These two treatment dimensions will be discussed in further detail shortly.

First, round 1 presents participants with complete information about the nominal exchange rate of the currencies needed to purchase the respective goods as well as the prices of each good. The nominal exchange rate and prices of goods in this round are stable with no uncertainty. In round 2, the nominal exchange rate of the foreign currency is allowed to fluctuate leading to uncertainty in the exchange rate. Round 3 instead introduces uncertainty in the price levels with the possibility of a potential increase or decrease in the foreign price. Finally, both rounds 4 and round 5 expand the set of foreign goods and currencies to two (i.e. good/currency B and C) with the option to select one with shared features (stable prices and exchange rate) as round 1. There is however a key difference between round 4 and round 5 in terms of the price information. Whereas round 4 presents participants qualitative information on the price difference between the local and foreign goods, round 5 presents quantitative information. These five variations characterized in each of the five rounds are selected because of their shared features with partially-dollarized economies (complete and incomplete price and exchange rate information). Tables 2.1 and sample experiment in appendix-B give further description of the rounds with regards to the parameters and design display respectively.

The nominal framing of exchange rates is varied between independent groups of subjects to understand the effects of redenomination. In the HNER (high) treatment, participants face a foreign exchange rate that is greater than one (e.g. 1 unit of Currency Unit of $A = 15$ units of Currency B). In the LNER(low) treatment, the foreign exchange rate is less than one (e.g. 1 unit of Currency Unit of $A = 0.15$ units of Currency B). Additional treatments exploring the effects of the magnitude of exchange rate changes can be found in the Appendix.

In a second dimension of the design, I vary between participants the relative prices of the two economies. That is, setting with relative expensive foreign goods (expensive) and

vice-versa (cheap). Holding each price setting constant, I examine the conversion decision of the two nominal treatment groups to accurately assess their nominal bias. This additional price dimension further provides a robust understanding of how currency demand and forex-illusion is mediated by the relative price level.

2.3.2 Implementation

To implement this experiment, I follow standard experimental procedures. First, prior to the five rounds, participants are asked to sign a consent form detailing their willingness to participate in the experiment. A follow up instruction and quiz is administered to help improve comprehension of the experiment (Freeman *et al.* (2018)). Each of the five main rounds has a what-if-calculator available for participants in making their conversion decision and lasts for 15 minutes. Participants receive feedback on their decision in a form of points and cash equivalent at the end of each round with exception of round 2 which is shown together with round 3 feedback. A randomly selected round from the five rounds is selected as the payment round.

Furthermore, to conform with the Ghanaian experience, I sample a total of 119 participants from a general student population in Ghana (i.e. Greater Accra Region (University of Ghana, Legon), Ashanti Region (Kwame Nkrumah University of Science and Technology, Kumasi) and Western Region (University of Mines and Technology, Tarkwa)). Each participant is allowed to partake in only one of the experiments. The experiment is designed using oTree (Chen *et al.* (2016)) with a unique participation link forwarded to participants on their computers. Participants receive payment from one of the randomly chosen rounds in addition to an initial payment (show up fee). In total, the average amount paid to participants is 5 Ghana Cedis which is equivalent to the average breakfast and lunch cost for students in Ghana.

2.3.3 Demand/Payoff Function

A standard microeconomic assumption is that agents exhibit homogeneity of degree zero in their demand for goods. That is, an increase in the price associated with an equal increase in money balances should lead to zero change in demand. Under money illusion, the homogeneity condition is violated as agents disregard the associated change in prices leading to real changes in demand. In the context of this experiment, foreign exchange illusion presents itself as a violation of the homogeneity of degree zero condition, whereby agents disregard the associated price changes when observing a nominal exchange rate change due to redenomination.

The solution for optimal demand for currency/good (i.e. Marshallian Demand) shown on equation-2.2 has both unique solution and homogeneous of degree zero properties. First, the optimal solution to the problem faced by all the participants in the nominal treatment groups is the same. This uniqueness property ensures that there is a standard reference

value for comparing decisions by the different treatment groups. Second, the solution has a homogeneous of degree zero in nominal exchange rate and prices property. The implication of this homogeneity property is that equivalent changes in nominal exchange rate and prices should not alter participants conversion decision. Violating this property establishes a strong evidence for the presence of forex-illusion. Equation-2.2 to 2.4 below show the general solution for optimal demand for currency/good and the proof of homogeneity of degree zero;

Optimal Currency Demand;

$$\begin{aligned} A^* &= \frac{(E)^\alpha M_A (P_A)^{\alpha-1}}{(EP_A)^\alpha + P_B^\alpha} \\ B^* &= \frac{EM_A (P_B)^{\alpha-1}}{(EP_A)^\alpha + P_B^\alpha} \end{aligned} \quad (2.2)$$

$$\text{Note } \Rightarrow \alpha = \frac{\rho}{\rho-1} < 0$$

$$\text{Optimal Amount of Currency A } \Rightarrow C_A^* = P_A A^* \quad (2.3)$$

$$\text{Optimal Amount of Currency B } \Rightarrow C_B^* = M_A - P_A A^*$$

Proof of Homogeneity of Degree Zero and Forex-illusion;

• **Proof of HODZ:**

Multiply the nominal exchange rate and Price-B by λ in A^ solution*

$$\begin{aligned} &\Rightarrow \frac{(\lambda * E)^\alpha M_a (P_a)^{\alpha-1}}{(\lambda * EP_a)^\alpha + (\lambda * P_b)^\alpha} \\ &\Rightarrow A^* = \frac{(E)^\alpha M_a (P_a)^{\alpha-1}}{(EP_a)^\alpha + P_b^\alpha} \end{aligned} \quad (2.4)$$

Hence there should be no change in demand of A^* based nominal exchange rate

• **Proof of Forex-illusion:**

Now, assume agents places different weights on the nominal exchange rate (λ_e), then:

$$\Rightarrow A(\lambda_e) = \frac{(\lambda_e * E)^\alpha M_a (P_a)^{\alpha-1}}{(\lambda_e * EP_a)^\alpha + (\lambda * P_b)^\alpha} \quad (2.5)$$

Hence, demand for Good A and B will depend on the nominal exchange rate with higher nominal rate leading to upward conversion bias ($\lambda_e(bias) \uparrow$) and lower nominal rate otherwise ($\lambda_e(bias) \downarrow$).

2.3.4 Hypothesis

To properly understand forex-illusion and make valid conclusion on its existence, I examine two different hypothesis based on differences in the treatment and optimality of the conversion rate. The subsections below give a detail breakdown of both test;

Hypothesis-A: Difference between Treatment

Here, I examine the difference in the conversion rate between the two treatment groups. Forex illusion hypothesizes that LNER participants have a lower conversion rate compared to their HNER counterparts. Using the simple regression equation-2.6, I test for the hypothesis-A on equation-2.7.

$$y_{1it} = D_i\beta + x'_{it}\theta_i + \epsilon_{it} \quad (2.6)$$

$$D_i = \begin{cases} 1 & \text{if Treatment = LNER.} \\ 0 & \text{if Treatment = HNER.} \end{cases}$$

where y_{1it} represents the difference between the participants conversion rate and the optimal conversion rate, D_i represents the dummy variable, β is the coefficient on the treatment dummy, x'_{it} is the vector of control variables and ϵ_{it} is the error term.

Hypothesis-A: *LNER convert less than HNER participants.*

$$\begin{aligned} H_{null} &: \beta \geq 0 \\ H_{alternative} &: \beta \leq 0 \end{aligned} \quad (2.7)$$

Hypothesis-B: Comparison to Optimal Solution

Using the regression equation-2.8, I examine further how the participants in each group performed relative to the optimal point under the respective price settings. To do this, I test for the hypothesis that coefficient γ is equation to one. The related hypothesis can be seen one equation 2.9

$$y_{2it} = x'_{1it}\gamma + x'_{2it}\theta_i + \epsilon_{it} \quad (2.8)$$

where y_{2it} represents conversion rate, x'_{1it} is the optimal conversion for each round, x'_{2it} is the vector of controls and ϵ_{it} is the error term. I test for the significant $\gamma = 1$ where failure to reject indicates optimal conversion by the participants.

Hypothesis-B: *Base on price setting, participants conversion rate matches the optimal rate.*

$$\begin{aligned} H_{null} &: \gamma = 1 \\ H_{alternative} &: \gamma \neq 1 \end{aligned} \quad (2.9)$$

2.3.5 Parameters

Table 2.1: Parameters under Price Settings

Rounds	Endowment	1. Expensive Price			Nominal Exchange Rate	
		Price (Good-A, Good-B)	Choice (Convert to B\$, C\$)	Optimal Conversion	HNER	LNER
1 (Perfect Information)	70A\$	(10A\$, 8.5A\$)	Convert to B\$	24.01	15B\$	0.15B\$
2 (Exchange Uncertainty)	40A\$	(5.5A\$, 5.5A\$)	Convert to B\$	20	20B\$	0.2B\$
3 (Price Uncertainty)	35A\$	(5A\$, 4.25A\$)	Convert to B\$	12.01	10B\$	0.1B\$
4 (Qualitative Price & Currency Choice)	80A\$	Expensive Good-B Expensive Good-C	Convert to B\$ Convert to C\$	30.11	350B\$ 1200C\$	0.035B\$ 0.0012C\$
5 (Perfect Information)	80A\$	(10.5A\$, 8.4A\$) (10.5A\$, 8.4A\$)	Convert to B\$ Convert to C\$	23.25	350B\$ 1200C\$	0.035B\$ 0.0012C\$
Sample Size					30	24
2. Cheap Price						
1 (Perfect Information)	70A\$	(8.5A\$,10.5A\$)	Convert to B\$	45.99	15B\$	0.15B\$
2 (Exchange Uncertainty)	40A\$	(5.5A\$,5.5A\$)	Convert to B\$	20	20B\$	0.2B\$
3 (Price Uncertainty)	35A\$	(4.25A\$,5A\$)	Convert to B\$	22.99	10B\$	0.1B\$
4 (Qualitative Price & Currency Choice)	80A\$	Cheaper Good-B Cheaper Good-C	Convert to B\$ Convert to C\$	41	350B\$ 1200C\$	0.035B\$ 0.0012C\$
5 (Perfect Information)	80A\$	(8.4A\$,10.5A\$) (8.4A\$,10.5A\$)	Convert to B\$ Convert to C\$	56.5	350B\$ 1200C\$	0.035B\$ 0.0012C\$
Sample Size					29	26

This table gives a detailed description of the parameters per each round including the expected optimal conversion rate.

2.4 Experimental Results

In this section, I present the results of two key forex-illusion hypotheses using the data from the experiment.

2.4.1 Hypothesis-A Results: Difference between Treatment

The results of the test of difference between the two treatment groups (hypothesis-A) displayed on table-2.2 largely support the presence of forex-illusion. First, using the entire

dataset from both price settings (column-2), I find that LNER participants significantly converted 13% less than HNER counterparts. This result holds true for both the standard regression (model-1) and the fixed-effect regression accounting for the rounds (model-2). Second, partitioning the results on the basis of the respective price setting (column-3 and column-4), I find a consistent difference between both treatments with LNER participants converting lesser than HNER counterparts. Specifically, the difference between the treatment groups are much higher in expensive foreign price treatment setting (i.e. LNER converted 22% more than HNER) compared to the cheap foreign price treatment setting (LNER converted 9% lesser than HNER).

Furthermore, I find a mixed effect of gender and travelling experience on the conversion pattern. For instance, gender proved significant in the conversion rate under the cheap price setting with male-participants converting more 29% than female-participants whilst travelling experience proved significant under expensive price setting with a unit increment in one's travelling experience leading to 9% lesser conversion rate.

Table 2.2: Hypothesis-A Results: Difference between Treatments

Dependent Variable: Percentage Deviation from Optimal (y_{1it})						
Column-1	Full-Sample		Expensive Price		Cheap Price	
	Column-2		Column-3		Column-4	
Regressors	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2
LNER-Dummy (β)	-0.13 ^{††} (.08)	-0.13 ^{††} (.07)	-0.22 ^{††} (0.12)	-0.22 ^{††} (0.11)	-0.09 [†] (0.06)	-0.09 [†] (0.06)
Gender	.04 (0.07)	.04 (0.07)	0.01 0.11	0.01 (0.10)	0.29*** (0.05)	0.29*** (0.05)
Travel-Experience	-.02 (0.03)	-.02 (0.03)	-0.09* (0.04)	-0.089* (0.05)	0.02 (0.027)	0.02 0.03
Round-Fixed-Effect	No	Yes	No	Yes	No	Yes
Observation	705	705	335	335	370	370
R-square	0.01	0.04	0.03	0.117	0.08	0.17

Notes: Standard errors in parentheses, [Two-sided test* p<0.1, ** p<0.05, *** p<0.01] & [One-sided test: † < 0.1 & †† < 0.05]

This table gives a detailed description of the differences in conversion pattern between the participants in the experiment. LNER participants have a lower conversion pattern compared to the HNER participants.

2.4.2 Hypothesis-B Results: Comparison to Optimal Solution

I examine the optimal performance of both the HNER and LNER participants under the cheap and expensive price settings. Optimally, lower conversion rate leads to higher payoffs under the expensive foreign price setting while higher conversion rate leads to higher payoffs in the cheap foreign goods setting. On the basis of nominal illusion theory where participants consider nominal value as a potential proxy for real payoff, however, participants are predicted to have a conversion rate different from the optimal predicted values. Furthermore, this difference between the optimal conversion rate and the predicted participants conversion rate is expected to differ based on the price setting.

For instance, under expensive price setting where lesser conversion rate leads to higher payoffs, HNER participants are predicted to deviate from the optimal conversion rate due to the high nominal exchange rate attracting them to convert less. The tendency for LNER participants deviating from optimal is lesser due to the low exchange rate preventing them from converting more therefore leading to lesser purchase of the expensive foreign goods. On the contrary, the opposite prediction holds true under the cheap price setting where higher conversion rate is better (i.e. HNER participants perform better than LNER participants).

Consistent with the nominal illusion theoretical prediction under the expensive price setting, I find LNER participants getting closer to the optimal conversion point ($\gamma = 1$) at 5% significance level using standard regression (model-1) compared to their HNER counterparts. Under the cheap price setting however, I fail to find any significant difference in the optimal conversion pattern between both treatment groups at 5% significance level.

Finally, gender and one's traveling experience significantly influenced the conversion decision. Under both the expensive and cheap price setting for instance, male-participants in the LNER treatment converted more than female-participants. The effect of travelling experience is however mixed. Under the expensive price setting and model-1 for instance, more travelling experience led to a higher conversion pattern under the LNER and lower conversion pattern under the HNER treatment. On the contrary, the cheap price setting led to a consistent higher conversion rate for both the LNER and HNER treatment groups. Table-2.3 gives a detailed description of the optimality results in each price setting.

Table 2.3: Hypothesis-B Results: Comparison to Optimal Solution

Dependent Variable: Conversion Amount per Round (y_{2it})								
Column-1	Expensive Price				Cheap Price			
	Column-2		Column-3		Column-4		Column-5	
	LNER		HNER		LNER		HNER	
Regressors	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2
Optimal (γ)	1.61 .36	1.61 .29	1.78 .35	1.78 .21	.68 .14	.68 .13	.60 .14	.60 .12
Gender	14.47*** 4.59	14.47* 7.52	-6.46 4.67	-6.46 9.27	16.13*** 4.06	16.13*** 5.25	.38 4.25	.38 6.19
Travel-Experience	4.21* 2.24	4.21 3.67	-3.61** 1.66	-3.61 3.29	4.38** 1.92	4.38* 2.48	6.81** 2.64	6.81* 3.83
Random Effect	No	Yes	No	Yes	No	Yes	No	Yes
Observation	100	100	125	125	95	95	100	100
R-square	0.22	0.24	0.19	0.21	0.29	0.32	0.21	0.21

Notes: Standard errors in parentheses, [Two-sided test* p<0.1, ** p<0.05, *** p<0.01]

This table gives a detailed description of the optimal conversion pattern of the participants in the lab. experiment. LNER subjects have a better conversion pattern compared to the HNER subjects.

2.5 Economic Implication and Conclusion

In this paper, I examined the effect of nominal exchange rate on participants' currency conversion decision in an incentivized experiment. Participants were assigned to two main treatment groups based on the nominal exchange rate with two different price settings. The result of this two by two experimental design showed a consistent pattern of higher conversion rate in the treatment group presented with high nominal rate and lesser rate of conversion for the participants in the low treatment group.

By inference, the experimental result can help explain the sharp depreciation of the Ghana Cedi seen post their currency redenomination conducted in July of 2007 which led to the reduction in zeros and subsequent low nominal exchange rate of the currency. Taking clues from this study, one can associate the depreciation of the Ghana Cedi relative to the USD after the redenomination to the low nominal exchange rate and low demand seen in this experiment.

The associated economic implication of currency redenomination and forex illusion is of major concern especially for partially dollarized economies. First, the inferred depreciation of the currency might lead to increases in import prices thereby increasing inflation and cost of living. Second, with a depreciated currency, there is a reduction in foreign direct investment and higher risk of capital flight. Last, interest rate increment as a form depreciation premium is likely to occur in these economies leading to reduction in investment, GDP and other key macroeconomic variables.

Given these potential negative impacts, central banks should consider carefully the pros and cons of currency redenomination policies in view of forex illusion prior to its implementation. As part of considerations, central banks should have a major international trading currency as a reference point to cutting off their zeros. In the case of Ghana for instance, the ideal number of zeros the central bank should have removed would have been three or less. This will prevent any substantial shift in the nominal exchange rate quotation as well as the pricing of the Ghana Cedi to the USD. Note that with 3 zeros off, the nominal exchange rate would have moved to 9.298 Ghana Cedi per USD instead of 0.9298 per USD resulting in the Ghana Cedi been cheaper and less likely to trigger any nominal illusion reaction.

Chapter 3

Guilty Until Proven Otherwise: High Status and the Burden of Proof under Socialism

In this paper, we re-examine extant status theory's central assumption that high-status actors are beneficiaries of biased evaluations of their audience. While this assumption is consistent with the principles of free-market capitalism, where societal institutions encourage and reward individual economic and social aspirations and wealth accumulation, it is inconsistent with the principles of socialism that view high-status actors as the source of inequality and seek to remedy it by redistributing the excess wealth of high-status actors to low-status actors. So, we contend that, in socialist settings, high-status firms invoke a negative stereotype in the eyes of their evaluators. They may use a firm's high status as a heuristic of bad behavior and rule against it. This negative stereotype held against high-status firms in socialist settings may be more decisive when a left-wing government is in power, but a high-status firm may demystify the stereotype when its visible actions run contrary to the stereotype. We find support for our theory in our analysis of the verdicts on lawsuits between commercial banks in India and their defaulting borrowers in the High Court of Kerala, an Indian state reputed for its deep-rooted socialist leaning.

3.1 Introduction

A key insight from status research is that rewards in the market are tied to a producer's position in the status hierarchy (Podolny (1993)). High-status firms can charge a higher premium for a given level of quality (Benjamin & Podolny (1999)), source their vital resources at lower costs (Podolny (1993)) and, remain well informed of market opportunities (Pollock & Rindova (2003); Stuart *et al.* (1999)). These advantages enjoyed by high-status firms mainly stem from altercentric uncertainty: the uncertainty that a firm's audience face in evaluating the credibility of its claims (Podolny (2001)). These claims could be about the quality of a firm's products (Podolny (1993); Benjamin & Podolny (1999)) or the

integrity of its actions (Edelman *et al.* (2011); McDonnell & King (2018)). The audience resolves altercentric uncertainty using status as a simplifying heuristic: they infer high-status producers' claims to be more credible than those of low-status producers (Podolny, (2005)). When in doubt, the audience tends to give the benefit of it to high-status firms, but they do not extend the same to low-status firms.

These biases in favor of high-status producers even extend to arenas where the audience is supposed to evaluate objectively. For instance, sports umpires have been observed to erroneously adjudicate in favor of high-status players (Kim & King (2014)), and juries erroneously rule in favor of high-status firms (Sutherland (1949); Edelman *et al.* (2011); McDonnell & King (2018)). These studies point to the deep-rooted admiration in a society for high-status firms (Ridgeway (2014); McDonnell & King (2018); Correll *et al.* (2017)). An undesirable consequence of such biased evaluations of high-status firms even in arenas where it should not matter is that it enables these firms to reproduce their status-based advantages while unintentionally perpetuating inequality in markets and society (DiPrete & Eirich (2006); Ridgeway (2014); Correll *et al.* (2017); McDonnell & King (2018)). An outcome that is widely known as the Matthew effect (Merton (1968)).

While the Matthew effect is consistent with the principles of Free Market Capitalism (Bodkin (2001); Rigney (2010)), where societal institutions reward individual economic and social aspirations and wealth accumulation (Weber (1905)), it is inconsistent with the principles of socialism that seek to reduce societal inequality by redistributing wealth from the rich to the poor (Marx (2004)). The rise of state socialism in several countries has its origins in uprisings against the Mathew Effect in markets and society. Communist dictatorships, such as those found in China and the former USSR, made it their mission to wipe out any class distinctions in markets and society. Apart from the socialist and communist regimes, cardcarrying capitalist powers such as the US and UK also have witnessed the rise of socialist sentiments that seek to make markets a level playing field (Gautney (2018); Howard (2019)). The Occupy Movement, for instance, emerged from the disillusionment of the working class in the US with the reward structure of free-market capitalism. It is not evident that status-based advantages documented in prior research have universal application outside the free markets and even on its fringes. The universality of status-based benefits comes into question, especially in evaluating producers' integrity claims, which is harder to verify (Jonsson *et al.* (2009)) and more amenable to abuse by high-status actors (Mishina *et al.* (2010)). But our understanding of audience' status-based evaluations of producers' claims is primarily based on evidence from the US, where the burden of proof is not on the high-status producer but on its audience.

In this paper, we propose that a producer's status can be a burden for it in the courtroom in socialist settings. Whereas prior research based on capitalist settings demonstrates that the high status of a firm comes to its rescue in the courtroom (Edelman *et al.* (2011); McDonnell & King (2018)), we argue that in socialist settings, occupying a high-status

position can hurt a firm's chances of getting a favorable verdict. In making this argument, we depart from prior research on capitalist settings by re-evaluating the assumptions about the stereotype held about high status firms by their audience. Although our central premise that status considerations loom large when there is ambiguity in evaluating a firm's claims is consistent with prior research findings in capitalist settings, our point of departure rests on the direction of the status based bias. When a court in a capitalist setting evaluates a firm's culpability in a lawsuit with its weaker stakeholders, it tends to use the firm's status as a heuristic of good behavior and rule in favor of the high-status firm, but in a socialist setting, the court will use a firm's status as a heuristic of bad behavior and rule against the high-status firm.

To evaluate our revised assumption's soundness, we consider two boundary conditions: the strength of the negative stereotype held by the evaluators at the time of the ruling and the alignment of the firm's visible actions with that stereotype. We expect that our assumptions about the negative stereotype held against high-status firms by the judiciary will be stronger when socialist sentiments are more robust in the jurisdiction – i.e. when a left-wing party is in power in the state. But we expect that the stereotype may be demystified when the high-status actor's visible actions contradict it – i.e. when they have demonstrated social responsibility.

We test these ideas in the Indian state of Kerala that has attracted much scholarly attention due to its socialist development model (Jeffrey (2016); Deshpande (2000); Desai (2002); Jensen (2007); Gibson (2012)). It is the first state in India to have an elected communist government as early as 1951. It was also the first to implement land for the tiller and the right to education, designed to wipe out inequality. The state has also taken notable initiatives to make the market a level playing field, such as easier access to credit and better infrastructure for small businesses. Due to its strong left-leaning, it is to date the only state in India where the Bharatiya Janata Party, India's dominant right-wing party that rules the central government with a supermajority, does not even have a single parliamentary seat. We examine our arguments in the lawsuits between commercial banks and their defaulting borrowers in the Kerala High Court.

3.2 Status-Based Evaluation of Integrity Claims: Whose Burden is it to Prove?

The disproportionate advantages enjoyed by high-status firms in markets is well documented. High-status firms are often sought-after partners in market exchanges (Podolny (1994); Chung *et al.* (2000); Thye (2000); Baum *et al.* (2005); (n.d.); (Jensen, (2008))). High-status others gravitate towards them due to status homophily consideration (Podolny (1994); Benjamin & Podolny (1999); Chung *et al.* (2000)), and low-status others aspire to partner with them to enhance their own social standing via association (Podolny (1993); Kilduff

& Krackhardt (1994); Benjamin & Podolny (1999); Gulati & Higgins (2003)). Because of status homophily, highstatus firms can retain their position even if there are occasional dips in their performance (Podolny (1993); Phillips & Zuckerman (2001)). Due to the higher expected value that they add to any relationship, they can make their low-status exchange partners work harder for them (Thye (2000); Castellucci & Ertug (2010)). High-status firms can also charge a premium for their offerings (Benjamin & Podolny (1999)), get high-quality supplies (Podolny (1993); Benjamin & Podolny (1999)), and even high-quality labor at deep discounts (Frank (1985); Bidwell *et al.* (2015)).

Usually, these disproportionate rewards accrue to high-status firms due to the uncertainty the audience faces in evaluating firms' quality claims (Podolny (2001)). This type of uncertainty is generally referred to as altercentric uncertainty because it is a firm's alters that face uncertainty in evaluating its quality (Podolny & Castellucci (1999)). A central tenet of extant status theory is that the audience resolves altercentric uncertainty using status as a simplifying heuristic to evaluate firms' quality. The audience equates higher status to higher quality. It is usually a reasonable expectation because the status of a firm is the deference that it enjoys from other market participants (Gould (2002)), who tend to sort towards high-quality producers and sort away from unreliable ones (Podolny (1993); Phillips *et al.* (2013)). But studies also show that high-status producers reap these benefits of doubt emerging from altercentric uncertainty even when they are evaluated on integrity.

Although quality is the primary consideration that the audience uses when evaluating a producer, at least some care about its integrity (Jensen, (2008); Krishnan & Kozhikode (2015)). But the integrity of high-status actors cannot be taken for granted (Jensen, (2008); Jonsson *et al.* (2009); Greve *et al.* (2010); Krishnan & Kozhikode (2015)). For instance, high-status firms have been shown to use questionable means to deliver quality and even engage in outright illegality (Perrow (1961); Jensen, (2008); Greve *et al.* (2010); Krishnan & Kozhikode (2015)). Yet, high-status actors usually get away with allegations of integrity violations due to the status halo (Benoit-Smullyan (1944); Polman *et al.* (2013)). That is, even though status only signals quality, the audience often uses it to evaluate integrity. The audience conflates high status with both high quality and high integrity (Krishnan & Kozhikode (2015); McDonnell & King (2018)), at least until a high-status actor unambiguously breaches that expectation, or when its integrity violations become public (Schudson (2004); Adut (2005)). In this sense, high-status firms are considered innocent until proven otherwise – they are freed of the burden of proof, which rests with their audience. Consequently, high-status firms can even get favorable verdicts in the court of law for their transgressions (McDonnell & King (2018)). Thus, it is evident from extant status research that the odds in the market and even non-market arenas are unduly stacked in favor of high-status producers, irrespective of how they attained their status or how they retain it.

An implicit consequence of such status-based evaluations by the audience is that it can breed inequality and questionable morality in markets and beyond (Ridgeway (2014)). First,

the disproportionate opportunities afforded to high-status actors make competition in the market uneven, leaving a wide gap between the haves and have-nots of the market. An outcome that is widely known as the Matthew effect of accumulated advantages (Merton (1968)). Due to their ability to get away with questionable means to deliver quality, high-status actors also hamper the morality of markets, as other firms may imitate the elite (DiMaggio & Powell (1983); Bauman *et al.* (2016)). In this paper, we argue that while the Matthew effect may be considered a fair game under free-market capitalism, it may not be generalizable to other markets where status aspirations are derided due to substantial leveling pressures.

As an economic system, free-market capitalism is built on the principles that the market is a level playing field where the property rights of producers are guaranteed by the law, labor participation is voluntary and sans discrimination, and an efficient price mechanism ensures that consumers get what they paid for (Smith (1937); Hayek (2020); Friedman (1962)). A free market is expected to not just enhance the wealth of a society (Smith (1937)) but also breed morality in it (De Montesquieu *et al.* (1900)). For (Smith (1937)), while capitalism facilitates the accumulation of wealth for the capitalists, it also makes the others associated with the capitalist modes of production better off. (De Montesquieu *et al.* (1900)), who served as an intellectual inspiration for the framers of the US constitution, believed that markets eradicate a society's prejudices because commerce only thrives when market participants exhibit higher moral standards. In this tradition, any inequality in a capitalist system is expected to be a well-earned reward that accrues to the able and righteous capitalists for the risks they take in the market.

This is a reasonable expectation in an ideal market society where opportunities are evenly distributed, and the competent producers get to the top of the status hierarchy by consistently delivering high-quality offerings and acting with integrity (Weber (1905); McClelland (1985); Bodkin (2001)). But we know from a large body of research that even in free markets, the audience faces difficulty measuring quality (Podolny (2001)), and producers do use questionable means to deliver quality (Mishina *et al.* (2010)). So, the status may or may not signal quality and integrity. Due to the free market's promise as a level playing field, all things remaining the same, the audience in market societies expects that high-status producers occupy their coveted position through fair means. Hence, it passes on its benefits of the doubt to them until their quality claims and integrity claims are refuted beyond doubt (Edelman *et al.* (2011); McDonnell & King (2018)). This is our point of departure from prior status research.

It is premature to expect that audiences outside of the market society will hold the same baseline evaluation about high-status producers. For instance, several societies the world over subscribe to one of the long-standing and most substantial criticisms of free-market capitalism, that it concentrates power in a society in the hands of a selective few capitalists who unduly profit from exploiting the weaker sections of the society (Marx

(2004)). Critiques of freemarket capitalism call for varying degrees of state intervention as the remedy. For the Marxists, the solution lies in a full-blown communist state - the dictatorship of the proletariat – that establishes a redistributive economy, where there is no room for a free market or free enterprise. When a communist state is established, the wealth of the capitalists is confiscated and redistributed by the state to the rest of the society. Although several of these communist states have disbanded or deemphasized communist ideals and are now more open to some form of capitalism, the state still plays a significant role in these post-communist and transitional societies, and their communist legacy continues to shape the markets (Marquis & Qiao (2020)).

Aside from full-blown communist regimes, several countries the world over have embraced some form of redistributive socialism. Not all opponents of free-market capitalism embrace the Marxist view of the dictatorship of the proletariat. Instead, they seek to curb the perils of free-market capitalism through varying degrees of state intervention. Hence, a variety of capitalism now exists that is some combination of free-market principles and some level of state intervention (Hall and Sockice, 2001; Greif, 2005). Market participants in these settings are subjected to significant leveling pressures that are institutionalized by redistributive policies (Dutton, 2002; Samuel and Hadjar, 2016).

One of the cornerstones of these leveling pressures is that status aspirations are disapproved. High-status producers are often portrayed as the cause for all the society's ills. While Marxist critics focus on the exploitation of the proletariat by the capitalists (Vidal (2019)), other critics focus on the unbridled pursuit of profits of capitalists that come at the cost of social good (Glasbeek *et al.* (2005)). Rapid erosion of natural resources, degradation of the environment, rampant corruption, and ever-increasing inequality have all been attributed to the greed of the few elite corporations (Glasbeek *et al.* (2005); Vidal (2019)). In fact, such leveling pressures have been witnessed within the fringes of the free markets, in ethnic enclaves (Portes & Sensenbrenner (1993)), workers and producers cooperatives (Ingram & Simons (2000); Simons & Ingram (2003)), and even urban ghettos (Venkatesh (1997)). While the state in these favors the free market, producers and workers who are disadvantaged in these regimes' mainstream markets gravitate to the fringes of the mainstream and seek to establish an egalitarian market that relies on bounded solidarity and enforceable trust (Portes & Sensenbrenner (1993)).

In this paper, we argue that unlike their counterparts in market societies, the audience in socialist societies may not place high-status producers at a high pedestal, especially when evaluating their integrity. We theorize that the audience is skeptical about the integrity claims of high-status firms in socialist settings. Consequently, we propose that high-status firms would be at a relative disadvantage in socialist societies when they are assessed on their integrity. But high-status firms may be able to gain a favorable assessment if they can present ample evidence of their goodness that contradicts their audience's baseline expectations. That is, the burden of proof for their integrity will lie squarely in the hands

of the high-status firms. Below we present our research context and develop testable hypotheses

3.3 Democratic Socialism in Kerala and the Burden of Status of Commercial Banks

The Indian state of Kerala has attracted much attention from sociologists (Desai (2002); Gibson (2012)), development economists (Deshpande (2000); Jensen (2007)), and political scientists (Overstreet & Windmiller (1959); Robin (1992)) for its unique socio-economic development model which has successfully transformed the region from one that was highly stratified and unequal to one that is democratic, socialist, and egalitarian (Robin (1992)). Kerala's socioeconomic development is way ahead of the rest of India and is comparable to the developed world (Isaac & Kumar (1991); Deshpande (2000)). Renowned political historian Robin Jeffery (1992) noted the transformation of Kerala as follows: "Nothing more vividly illustrates the transformation of Kerala in the twentieth century than the way people use their hands. In the old Kerala that began to dissolve rapidly in the 1920s, a low-caste man put 'his left hand on his breast, and his right over his mouth,' if he dared to speak to his superiors, 'for fear his breath may pollute the air.' By the 1950s, however, it was more likely that men – and increasingly women too – would use their hands differently, as clenched fists, shaken above their heads, as they chanted 'Inquilab Zindabad' (victory to revolution) and marched in demonstrations." While various reasons have contributed to Kerala's transformation, the state's long history with Marxist mobilization of peasants and workers has been critical (Isaac & Kumar (1991); Robin (1992)).

The emergence of communism in Kerala can be traced back to the early 1920s when the region witnessed a significant mobilization of peasants and workers in the independence movement spearheaded by the Indian National Congress (INC). But slowly, the communists took over the INC in Kerala. They facilitated the formation of several trade unions in the textile industry, which was the backbone of commerce in Kerala before independence. A rift with the INC elites prompted Kerala's communists to organize outside the congress label in their unencumbered pursuit of Marxism rejected by the INC. The communists who left the INC joined the Communist Party of India (CPI) in 1939.

While the CPI's mobilization was heavily curtailed during the British rule, the CPI continued its grassroots mobilization in Kerala, which bore fruit after Indian independence. The CPI won the first-ever election held for the state of Kerala in 1957. In 1964, a large splinter group of the CPI left the party due to ideological disagreements. This resulted in the formation of a new political party, the Communist Party of India – Marxist (CPIM). In Kerala, the CPIM and its allies – the Left Democratic Front (LDF), won their first assembly election in 1967. The LDF has held power in the Kerala assembly for roughly half the period

since then. The INC and its allies, the United Democratic Front (UDF), have held power for the remaining half.

But due to electoral compulsions (Downs *et al.* (1957)), the communist governments in Kerala took a more moderate approach to public policy rather than the radical reforms witnessed in other communist dictatorships such as China and USSR (Nossiter (1982)). Although the UDF is generally considered more business-friendly than the LDF, due to electoral compulsions, its policy prescriptions are not drastically different from those of the LDF, and it is deemed as a center-left coalition. Due to the widespread acceptance of democratic socialism in the state, India's dominant right-wing political party, the Bhartiya Janata Party (BJP), and its allies have not made any notable progress in Kerala even now.

One of the significant policy changes brought in by the communists in Kerala was a land reform act that effectively abolished feudalism by redistributing land to the tiller from the wealthy landlords. The first attempt to implement the reform came in 1959, right after the CPI came to power in Kerala for the first time, but it faced stiff resistance from landlords, who successfully contested it in the Kerala High Court. It took another decade before the CPIM could reintroduce the bill and get it passed in the state legislature with bipartisan support. In fact, while the land reform bill or the "land for the tiller" bill was implemented by the communist parties, the bill very closely followed the recommendations of the Congress Agrarian Reforms Committee's Report of 1949, which the INC failed to enact into law. The law mandated that no family shall own more than 15 acres of tillable land and forced landlords to part away with the excess land to the tillers who have been renting it until then. Within a decade of the law's enactment, over two million tillable land plots were redistributed from wealthy landlords to the tillers who were renting it from them until then (Herring (1980)).

While socialism in Kerala ended feudalism in agriculture, it also paved the way for an egalitarian marketplace. The state has strived to promote small enterprises and entrepreneurship among underrepresented sections of society (Mars (1975)). The government of Kerala has set up several cooperative banks and non-banking financial institutions to lend to aspiring entrepreneurs without collateral (Davy (2004); Gopakumar (2005)). Similarly, the state promotes business ventures by women self-help groups and tribal communities by offering them easy access to micro-credit and setting up direct to consumer marketplaces that help these small businesses avoid the middlemen (Pat (2005); Devika & Thampi (2007); Arun *et al.* (2011); Biju & Kumar (2013)). At the same time, high-status corporations are often blamed for most social ills, and they are often sites of a variety of protests, demonstrations, and lawsuits. Over the years, business units of India's renowned business groups such as the Birlas and the Adanis, and those of world-renowned multinational corporations such as Coke and Pepsi all have been targeted by the trade unions, consumer groups, environmental activists, and even the government of Kerala with allegations of corporate

greed and malfeasance (Mohan & Raman (1988); Bijoy (2006); [Surendran, 2006]; [New Indian Express, 2018]; [Hindustan Times, 2020]).

Kerala's democratic socialism, which holds high-status corporations in distrust, offers an appealing contrast to the benefit of doubt enjoyed by high-status corporations in free-market capitalism. This contrast is nowhere more visible in the banking industry than in any other industry. Commercial banks have often been considered the flag bearers of free-market capitalism (Simons & Ingram (1997)), but they are vehicles of redistributive policies in a socialist economy (Caprio Jr & Levine (1994)). Commercial banks in socialist regimes have often considered social enterprises rather than commercial enterprises. Socialist governments often mandate commercial banks to lend to sectors that help them deliver their socialist objectives rather than those catering to banks' commercial interests. Consequently, commercial banks in socialist regimes seldom care about their borrowers' creditworthiness or prioritize debt collection (Krishnan & Kozhikode (2015)). They could afford it because the state assumed the risk of default and covered banks' losses (Caprio Jr & Levine (1994)).

But commercial banks in India were mainly in private hands until Indian independence, and they enjoyed the freedom to pursue their commercial interests under the British. They continue to enjoy this freedom during the Nehru Era. But in the late 1960s, the communists pressured the new prime minister, Mrs. Indira Gandhi, to nationalize prominent commercial banks in India to deliver credit to rural India, which was virtually unbanked until then (Sen (2017)). In response, India nationalized 20 commercial banks, bringing close to 80% of the banking industry under government ownership and control (Bhasin (2007)). The government also set rural lending targets for private banks. For instance, for each branch that a private bank opened in an urban center, it was expected to open four more in unbanked rural areas (Kozhikode (2016)). This status quo remained until the introduction of economic liberalization in the early 1990s. The banking industry served the interests of the communist governments until then, but India's economic liberalization in the 1990s changed that (Bhasin (2007)).

First, the Reserve Bank of India issued licenses to form several new private banks and facilitated several foreign banks to establish their branches in India (Kumbhakar & Sarkar (2003)). The banking industry became highly competitive with the entry of these new players. Although the Indian banking industry did not have a reliable system to assess borrowers' credit history, banks competed fiercely for loans by offering lucrative rates not seen before in India. Further, despite deregulation in the banking industry, banks were still required to meet the government's lending targets to priority sectors— e.g., agriculture, education, housing, infrastructure, etc. But one thing that changed with liberalization was that banks were now held accountable for accumulating bad debts (Krishnan & Kozhikode (2015)).

In 2004, the Reserve Bank of India mandated commercial banks to periodically disclose NPA levels in their loan portfolios. The new regulatory requirement soon started having

an impact on how banks in India were evaluated. Banks came under tremendous pressure from their shareholders to improve their asset quality. Banks with healthy NPA ratios won accolades from the popular press and were rewarded by the RBI. So, maintaining a good reputation for asset quality became a highly desired goal for Indian banks. To facilitate banks in their loan recovery effort, the government of India headed by the BJP enacted the “Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act” in 2002 (SARFAESI Act). It allowed banks significant leeway to recover unpaid loans from wilful defaulters. But banks also used it to harass defaulters who had genuine financial difficulties, like farmers after a failed harvest or small businesses unable to repay the loans due to seasonal fluctuations in demand (Krishnan & Kozhikode (2015)). Many of these borrowers committed suicides due to the harassment of banks (Jeromi (2007)).

In Kerala, consumer groups called it a draconian law that unduly favored elite commercial banks and undermined the common man’s interest (Ameerudheen (2018); Cris (2019)). They have routinely protested and demanded that the central government repeal it or revise it to reduce its detrimental impact on the weak (News-Minute (2018)). The LDF in Kerala supported these protests and urged the commercial banks to go lenient on borrowers from the weaker section, and it urged the central government to relax the law, at least for the weaker sections of the society (Hindu (2019)). But commercial banks were unwilling to concede as they had immense pressure from their shareholders, the RBI, analysts, and popular press to bring their NPA under control (Businessline (2019)). The central government was not forthcoming to amend the SARFAESI Act as the banking industry was in bad shape (Manju (2019)).

Consequently, in a last-ditch attempt to resist banks’ recovery attempts, many defaulting borrowers approached the courts. But the courts have minimal sway in these cases as the SARFAESI Act affords banks substantial leeway to repossess troubled assets without seeking the court’s permission (Siraj & Pillai (2012)). Despite this, the Kerala High Court, our study setting, received about two thousand cases during our study period, over a third of all such cases received by all high courts across India. Below, we theorize how a commercial bank’s status may matter in court rulings in debt recovery lawsuits between banks and their borrowers in the Kerala High Court under the SARFESI act.

3.4 Hypothesis Development

3.4.1 The Burden of High Status in Socialist Courtrooms

Our central criticism of prior status research pertains to the universality of its assumption about the audience’s biased positive evaluation of high-status actors’ integrity claims. According to prior status research, which is predominantly based on evidence from market societies, the audience place high-status producers at a high pedestal because they assume the market is a level playing field where status is attained through fair practices due to free

and fair competition and an effective rule of law which weeds out dishonest actors and curtails unfair acts (Hahl & Zuckerman (2014); McDonnell & King (2018)). But as we have contended so far, in socialist societies, audiences consider markets to be loaded in favor of the high-status actors who act in self-interested ways unless they are disciplined by the state and civil society.

At first blush, it may appear that these differences in status-based evaluations may not have a bearing on how courts decide firms' culpability. But courts are not often as objective as they are widely conceived (Stepanov (2010)). Research in the sociology of law shows that courtrooms are influenced by public opinion and prevalent biases and stereotypes in a society (Edelman *et al.* (2011); Lemmings (2016); McDonnell & King (2018)). When culpability is difficult to establish, jurors and judges rely on their intuition and other simplifying heuristics prevalent in a society to determine an actor's culpability (Guthrie *et al.* (2009); Peer & Gamliel (2013)). For instance, gender and racial stereotypes and first impressions have been shown to influence US courts' judgments (Rachlinski *et al.* (2008); Nadler & McDonnell (2011)). Judges and juries even use seemingly objective evidence presented to them in a manner that confirms their heuristics and intuition (Englich *et al.* (2006)). Similar biases exist even in cases that involve corporations. For instance, (Edelman *et al.* (2011)) observed that in discrimination lawsuits, judges in the US used the presence of employee grievance departments in firms as evidence of the innocence of those firms.

These heuristics have been shown to be loaded in favor of high-status actors in capitalistic settings. For instance, (Edelman *et al.* (2011)) observed that plaintiffs who lacked significant clout disproportionately lost discrimination lawsuits. Similarly, (McDonnell & King (2018)) showed how courts in the US generally ruled in favor of high-status firms in employment discrimination lawsuits, as they expect high-status firms to act with higher integrity than their low-status counterparts. We expect that such status-based biases may also operate in the courtrooms in socialist settings, but the heuristics and intuitions will be in alignment with the negative expectations held against high-status firms in these societies. Whereas courts in capitalist settings expect high-status actors to be innocent until proven otherwise, we expect that courts in socialist settings may expect high-status actors to be guilty until proven otherwise. Hence, we predict that in lawsuits filed by defaulting borrowers against their banks challenging their debt recovery practices, the higher the bank's status, the more likely it is that the court will rule against the bank and in favor of the aggrieved borrower.

Hypothesis 1: In socialist settings, the higher the status of a commercial bank in a debt recovery lawsuit filed against it by its defaulting borrower, the higher the likelihood that the court will rule against it.

3.4.2 Heterogeneity in Courtroom Biases

Our prediction that high status is a burden in courtrooms of socialist democracies is built on the premise that courtrooms in these settings consider the market to be loaded in favor of the high status actors, and they seek to discipline their behavior. We now tease out this mechanism by exploring two sources of heterogeneity in courtroom biases against high-status firms in socialist settings. First, we examine the heterogeneity in audience perception. We expect that even within a socialist setting, some regimes may be more left-leaning than others, which may have a bearing on courtroom biases. Second, we examine the heterogeneity in the evidence for the integrity of the defendant firms. We expect that at least some firms that are being sued in courts will have accumulated ample evidence to disprove their audience's baseline expectation. When a high-status firm can show that they have a history of high integrity that defies their socialist audience's expectations, they may get a favorable verdict in courts. Below we develop these ideas further into moderating hypotheses.

Strength of the left-wing and reinforcement of courtroom biases. The biases audience holds against high-status firms in democratic socialist settings may be reinforced or weakened depending upon the power of the socialist ideology in that setting. Due to democracy, there could be considerable temporal heterogeneity in the ideology endorsed within the society (Downs *et al.* (1957)). Audience preference for socialist policies may ebb and flow. Such heterogeneity in preferences could permeate into the courtroom as well (Nagel (1961)). This can happen both organically as a reflection of the voters' shifting preferences, or it can occur due to the state's intervention (Zuk *et al.* (1993); Segal *et al.* (1995)).

Courtrooms have been shown to sway towards public opinion. What courts deem as normative and commendable and what they denigrate as counter normative and punishable is determined to a great extent by public opinion (Mishler & Sheehan (1993)). When a leftleaning party is in power, it reflects the public's preference for leftist ideology, which views high-status corporations as the cause for social ills. Hence, when a communist government is in power, the courtrooms may deliver verdicts that are less favorable to high-status organizations.

But courtrooms can also become disproportionately loaded in favor of the ideology endorsed by the party in power through the active intervention of the ruling party (Mishler & Sheehan (1993); Zuk *et al.* (1993); Segal *et al.* (1995)). Parties in power can appoint like-minded judges to vacant positions in the courtrooms and thereby extract rulings that support their ideology. For instance, judges of the US Supreme Court appointed by Republican presidents of the US tend to rule more conservatively than their colleagues appointed by Democratic presidents (Zuk *et al.* (1993); Segal *et al.* (1995)). So, when a communist party is in power, the judges tend to be more left-leaning in nature and tend to be even more biased against high-status corporations. Hence, we hypothesize the following:

Hypothesis 2: In socialist settings, any negative effect of the status of a commercial bank on the verdict it receives in debt recovery lawsuits filed against it by its defaulting borrower will be stronger when the government is ruled by a left-leaning party.

Proof of integrity and the reversal of courtroom biases. The biases audience holds against high-status firms in democratic socialist settings may be reinforced or weakened depending upon the evidence of integrity that these firms bring to bear. The audience uses a firm's status to set behavioral expectations. We had argued so far that whereas in a capitalist setting, audiences expect high-status firms to exhibit high integrity, in socialist settings, the audience expects the opposite. This low integrity expectation from high-status firms is what drives courtrooms to rule against them in lawsuits filed against them by their aggrieved customers. But a high-status firm can persuade its audience to revise its expectation by presenting evidence to the contrary.

Firms can signal their integrity to their audience by engaging in socially responsible behavior (Krishnan & Kozhikode (2015)). Prior research has shown that firms in the US reduced their litigation risks by engaging in corporate social responsibility (CSR) (Koh *et al.* (2014)). We expect that the audience of high CSR firms may feel compelled to evaluate a firm in a positive light due to the proof of integrity that its CSR activities present. CSR initiatives may help a high-status firm in socialist courtrooms by revising the lower integrity expectations held against them by the judges.

But firms must go beyond the call of duty and not merely engage in symbolic compliance to CSR mandates in socialist settings. Most socialist settings require firms to engage in some form of CSR. For instance, commercial banks in India are expected to increase their lending to priority sectors such as agriculture and education. These areas may not be lucrative for the banks, but it helps the government push its development agenda. But merely meeting the state's mandate for priority sector lending would not suffice. They may have to engage in more priority sector lending than their competitors. Hence, only increasing their commitment to corporate social responsibility will help them reverse the negative integrity expectations that the audience holds about them. Therefore, we hypothesize the following:

Hypothesis 3: In socialist settings, any negative effect of the status of a commercial bank on the verdict it receives in debt recovery lawsuits filed against it by its defaulting borrower will be weaker for banks that exhibit a higher commitment to corporate social responsibility.

3.5 Methodology

3.5.1 Data and Dependent Variable

We examined the influence of commercial banks' status on the verdicts they received in debt recovery lawsuits filed in the High Court of Kerala from 2003 to 2015. We started our observation in 2003 because the Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest Act, 2002 (SARFAESI Act) was implemented in

December 2002. The SARFAESI Act allowed commercial banks and other financial institutions to recover bad loans from defaulting borrowers by repossessing and auctioning their residential or commercial properties. Banks have routinely used this act to recover bad loans since then, but it has also faced stiff resistance from consumers who have challenged the methods adopted by the banks in courts. For our study, we were interested in cases filed in the Kerala High Court.

We obtained data on debt recovery lawsuits filed in the Kerala High Court from <https://indiankanoon.org/>, an online repository of cases filed in Indian courts. We used a web scraping program to download all cases filed in the Kerala High Court that involved a commercial bank in India from 2003 to 2015. We manually identified debt recovery lawsuits between banks and their individual borrowers filed under the SARFESI Act from this initial list. The first debt recovery case adjudicated under the SARFAESI Act by the Kerala High Court was in 2006. There were only five cases that year, but the number of adjudicated cases has progressively increased since then, peaking at 400 cases in 2010. The last case we observed in our dataset was adjudicated in September 2015. We identified a total of 2013 such lawsuits from 2006 to 2015, where an outcome was determined.

In each debt recovery case, we identified if the bank won or lost the case by reading the case texts. The dependent variable we use in this study is a binary outcome of zeros and ones based on the known outcomes. Specifically, we coded the dependent variable as a one if the realized outcome favored the banks and as zero otherwise. Of these binary-coded outcomes involving the debt recovery cases, a total of 1858 (i.e., 92.3%) favored the banks, and 155 (i.e., 7.70%) favored the borrower. This suggests that debt recovery lawsuits are predominantly ruled in favor of banks, as originally intended by the Government of India. Debt recovery lawsuits in the Kerala High Court thus offers a conservative setting to test our hypotheses of biases against high-status banks in socialist courtrooms. If banks invariably win cases, as the numbers indicate, the prejudice against high-status banks has to be severe in the Kerala High Court for us to pick up a statistically significant effect.

Of the total 2013 litigated cases, 723 cases were held between the period 2006 and 2010 (i.e. LDF era) and the rest of the 1290 cases were litigated between 2011 to 2015 (UDF era). In terms of the banks loss rate, 14.1% was recorded during the LDF era (i.e. 102 losses vs 621 wins) and improved 4.1% during the UDF era (i.e. 53 losses vs 1237 wins). It is worthwhile to note that even though the number of cases increased almost doubled during the UDF era, the number of losses almost halved. This is a further indication of the strength of the political influence hypothesis (i.e. hypothesis-2) espoused in this paper. Table C.2 gives a detailed breakdown of the cases per year.

3.5.2 Independent Variables and Moderators

Status signifies how central and influential a bank is relative to its peers. Bonacich centrality score is a widely used measure of status (Podolny & Phillips (1996); Podolny (2001)). It is the

network centrality score of an actor that considers the actor's centrality and the centrality of those connected with it (Bonacich (1987)). We used the list of preferred bankers of all firms listed on the Bombay Stock Exchange to construct a network of all commercial banks. Several firms listed in the Bombay Stock Exchange list their preferred bankers in their annual reports. As it is a voluntary disclosure, it signals a corporation's endorsement of the banks that it lists as preferred bankers.

Several firms list more than one bank as preferred bankers. Preferred bankers often share banking responsibilities, such as co-lending on commercial loans to the firm and jointly promoting its share and debenture issues. Thus, banks intersect with each other when they jointly service a corporate client that lists them as "preferred." This approach to constructing networks of banks through their joint affiliations with corporate clients is consistent with the methods of prior research on social networks, in which networks of venture capitalists have been constructed using their affiliations with start-up firms that they jointly funded (e.g., Sorenson & Stuart (2001); Rider (2009)). Based on this network, we computed each bank's Bonacich centrality score each year and used this as the measure of Bank status.

Hypothesis 2 predicts the moderating role of the ruling party's political ideology in Kerala during the adjudication. We expected that any negative effect of a bank's status on its debt recovery lawsuits will be strengthened when a left-leaning party is in power. During our study period, two major coalitions have held the state government in Kerala- The Left Democratic Front (LDF) and the United Democratic Front (UDF). The LDF comprises the Communist Party of India (Marxist), the Communist Party of India, and several other smaller left-leaning parties. The UDF consists of the Indian National Congress (Indira), the All-India Muslim League, and several other smaller parties. Between these two major coalitions, the LDF, as its name suggests, is more left-leaning, whereas the UDF is usually classified as a centrist or center-left coalition by most political observers (Ibrahim (2009); Sáez & Sinha (2010)). The LDF was in power from 2006 to 2010. So, we coded Communist in Power as 1 between 2006 and 2010 and as 0 between 2011 and 2015.

Hypothesis 3 predicts the moderating role of a bank's corporate social responsibility during the adjudication. A bank's commitment to lend to the needy who do not have reliable credit records is an act of corporate social responsibility. The Government of India recognizes specific sectors such as education and agriculture as priority sectors and mandates banks to lend a portion of their assets to priority sectors. As lending to priority sectors carries significant default risks, there is considerable heterogeneity among banks in the willingness to lend to these sectors. While most just comply, some go beyond the mandate and lend extensively, and some others underperform on the mandate and choose to pay a fine instead (Uppal (2009); Kumar *et al.* (2016)). Therefore, we coded *Socially Responsible Lending* as the ratio of a bank's lending to priority sectors during the previous year.

3.5.3 Control Variables

First, we controlled for several bank-level variables that account for alternative explanations for our effect of status. While some of these alternative explanations relate to known correlates of status that may influence the verdict, others are specific to our setting. High-status banks are also likely to be bigger in size, so we must rule out the possibility that the effect of status that we observe is not driven by size. So, we controlled for *Bank Size* measured as the number of workers (in thousands) employed by the bank during the previous year. Banks that perform well may attract guilty verdict in a socialist courtroom, but high-status banks may also perform better than the average. So, we controlled for *Bank Performance*, measured as the return on assets in the previous year. Like performance, the quality of a bank's assets may be closely related to status. When it visibly slips, even a high-status bank may engage in questionable actions, increasing its chances of being ruled guilty in debt recovery lawsuits. So, we controlled for a *Bank's asset quality*, measured as the ratio of non-performing assets in the bank's loan portfolio.

High-status banks may also be more likely to get listed in the stock exchange, but they also face intense pressure from shareholders to recover their bad debts, which might have contributed to questionable recovery practices that attract a guilty verdict in the courtroom. So, we controlled for *Listed Banks* measured as 1 if the bank was listed in any Indian stock exchange and 0 otherwise. High-status banks can afford expensive lawyers who may help them win cases, so we controlled for a *Bank's Legal Expenses* as the amount (in millions of rupees) that a bank spent on legal expenses the previous year. High-status banks may get into the good books of the courts through advertisements. So, we controlled for the *Bank's Advertisement Expenses* as the amount (in millions of rupees) that a bank spent on advertising and publicity the previous year. We also controlled for ownership of banks, as several *State-Owned Banks* have come to occupy high status over the years, but they may get a favorable verdict because of the support they enjoy from the government.

Next, we controlled for several case-level variables that may influence the verdict and mask the status effect. To begin with, it is crucial to consider the bank's record in similar lawsuits. Some banks may have figured out a way to win similar cases and cite those as precedence for future cases. So, we controlled for the *Bank's Win Rate* as the proportion of SARFAESI cases won by it in the Kerala High Court until the focal case was adjudicated. Parties to a lawsuit may also cite multiple previous lawsuits to claim precedence. When there is substantial precedence, it may negate the effect of other biases. So, we controlled for the *Number of Cases Cited* in each case. While the SARFAESI is the primary act cited in these lawsuits, other acts are routinely cited, such as several sections of the Indian Penal Code that the bank may have violated. We expect that when there are additional grounds to find a party guilty, it may influence the verdict. So, we controlled for the *Number of Acts Cited* in each case.

3.5.4 Model Specification

As we have a binary outcome, we used a logit model to assess the independent variables' effect on verdicts in debt recovery lawsuits. To rule out endogeneity concerns, we also ran an instrumental variable probit estimate to examine the main effect of status. As there are multiple cases per bank, we had to account for the non-independence of cases involving the same bank. So, in all our models, we report standard errors robust to bank-level heteroskedasticity.

3.6 Results

Table C.1 reports the descriptive statistics and correlations of all the study variables. Some of our covariates exhibited high intercorrelation, so there was a risk of multicollinearity. To overcome this concern, we tested our hypothesized effects hierarchically. We also mean-centered all continuous variables used to construct interaction terms. The mean-variance inflation factor was under 4 in all models, suggesting that multicollinearity is not a problem in this study. In Table 3.1, we report the results of our main logit specification. In this table, Model 1 is the baseline with all the controls, Model 2 tests the main effect of *Bank status*, Model 3 tests hypotheses 2 pertaining to the interaction between *Bank status* and *Communist in power*, Model 4 tests hypotheses 3 related to the interaction between *Bank status* and its *Socially responsible lending*, Model 5 is the full model with all the controls and theoretical variables.

Table 3.1: Logit Estimates for Outcome of Debt Recovery Lawsuits Favoring Banks

Covariates	Model 1	Model 2	Model 3	Model 4	Model 5
Bank Size	-0.01*	-0.01*	-0.01	-0.01*	-0.01
	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)
Bank Performance	-80.50**	-85.18**	-73.45**	-90.36***	-78.57**
	(30.83)	(27.66)	(27.78)	(24.36)	(25.24)
Bank's Asset Quality	-19.82*	-24.74**	-22.16*	-25.02**	-21.83*
	(9.27)	(9.53)	(9.63)	(9.43)	(9.63)
Listed Banks	-0.32	-0.28	-0.15	-0.14	0.06
	(0.46)	(0.52)	(0.49)	(0.37)	(0.31)
Bank's Legal Expenses	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Bank's Advertisement Expenses	0.02**	0.02**	0.02*	0.02**	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
State-Owned Banks	0.12	0.28	0.39*	0.21	0.32
	(0.18)	(0.20)	(0.19)	(0.19)	(0.17)
Bank's Win Rate	1.89***	1.89***	1.93***	1.84***	1.87***
	(0.19)	(0.18)	(0.18)	(0.18)	(0.18)
Number of Case Cited	-0.27***	-0.27***	-0.27***	-0.28***	-0.28***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Number of Acts Cited	0.09	0.10	0.09	0.11	0.11
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
Communist in Power	-0.87***	-0.83***	-0.38	-0.88***	-0.34
	(0.26)	(0.21)	(0.31)	(0.22)	(0.30)
Socially Responsible Lending	4.33**	5.25***	4.26**	4.65***	3.19*
	(1.42)	(1.52)	(1.48)	(1.35)	(1.33)
Bank Status		-0.20*	-0.02	-1.02*	-1.22**
		(0.09)	(0.11)	(0.41)	(0.43)
Bank Status			-0.35*		-0.44***
X Communist in Power			(0.15)		(0.13)
Bank Status				2.56*	3.91**
X Socially Responsible Lending				(1.18)	(1.32)
Constant	1.25**	1.20**	0.90*	1.33**	1.03*
	(0.44)	(0.42)	(0.44)	(0.44)	(0.44)
Chi Square	347.795	282.797	533.036	355.125	1001.054
Log Likelihood	-484	-482	-481	-482	-479

N = 2013 lawsuits involving 58 commercial banks.

Robust standard errors in parentheses;

Observations clustered by bank to account for non-independence

Significance levels: * p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

In Model 1, some of our controls are significant. Bigger banks, banks that performed well, and banks with low asset quality experienced a decreased probability of winning a debt recovery lawsuit in the Kerala High Court. Banks that had a history of winning, banks that advertised intensively, and those that spent more on corporate social responsibility experienced an increased probability of winning a debt recovery lawsuit in the Kerala High Court. Banks lost more cases during the communist regime and when there was greater legal precedence.

Hypothesis 1 predicts a negative relationship between *Bank status* and *Bank favored outcome* -i.e., we expected that high-status banks will have a higher probability of losing cases than their lower-status counterparts. Model 2 in Tables 2 confirms this hypothesis. The coefficient for *Bank status* is negative and significant (= -0.205, SE=0.086, p=0.017).

These findings have high practical significance too. A one-unit increase in a bank's status decreased its odds ($1-\exp[-0.205]$) of winning the debt recovery lawsuit in Kerala by 19%.

Hypothesis 2 predicts that the negative effect of Bank status on *Bank favored outcome* will be strengthened by the *Communist in power*. As expected, the interaction term in Model 3 in Table 3.1 is negative and significant ($=-0.351$, $SE=0.154$, $p=0.023$). Thus, Hypothesis 2 is supported. Figure 1 shows the marginal effects of this interaction based on the full model's coefficients. When the LDF government was in power (i.e., *Communist in power*=1), a one standard deviation increase in a bank's status (1.08) decreased its odds of winning a favorable verdict in the Kerala High Court by 19.5 percentage points, but a comparable increase in status when the UDF government was in power (i.e., *Communist in power*=0), decreased its odds of winning the case only by 12.8 percentage points, a net difference of 6.7 percentage points. When a left-leaning party was in power, a highstatus bank increased its odds of getting an unfavorable verdict by 6.7 percentage points or 52 percentages than a peer that was one standard deviation below it in status.

Hypothesis 3 predicts that the negative effect of Bank status on Bank favored outcome will be weakened by the bank's *Socially responsible lending*. As expected, the interaction term in Model 4 in Table 3.1 is positive and significant ($=2.562$, $SE=1.182$, $p=0.030$). Thus, Hypothesis 3 is supported. In Figure 2, we plot the marginal effects of this interaction based on the full model's coefficients. When a bank's *Socially responsible lending* is at its mean value (0.3), a one standard deviation increase in its status (1.08) decreases its odds of winning a favorable verdict in the Kerala High Court by 15.1 percentage points. But a comparable rise in a bank's status when its Socially responsible lending is one standard deviation above the mean (0.4) decreases its odds of winning a favorable verdict by 12.8 percentage points. That is, by increasing its *socially responsible lending* by one standard deviation, a high-status bank can decrease its odds of getting an unfavorable verdict by 2.3 percentage points or by 15.1 percentages than its peers that is one standard deviation below it in status.

Model 5 in Table 3.1 includes the comprehensive model testing both the interactions. All relationships from the earlier models continue to be supported in the full model. Thus, Hypotheses 1, 2, and 3 are fully supported.

3.6.1 Additional Analysis

Alternative specification. We wanted to examine if our results are robust to alternative specifications. Generalized Estimation Equations (GEE) are widely used in panel data analysis because it can produce an unbiased estimation of population-averaged regression coefficients even if the correlation structure is misspecified (Ghisletta & Spini (2004)). Another advantage of GEE is that it allows us to estimate the models using the most suitable distribution for the data (Castilla (2007)). In Table C.3, we report the result of heteroskedasticity consistent generalized estimation equations (GEE) with a logit link,

binomial family, and an exchangeable correlation structure. These results are consistent with those in our main models, indicating that our results are robust to alternative specifications.

The number of successful outcomes for banks far outweighs the number of unsuccessful outcomes. So, a negative outcome for banks is a seemingly rare event in our data. But logistic regression may underestimate the probability of rare events (King & Zeng (2001)). To correct this potential bias, we re-estimated our models using rare event logistic regressions (King & Zeng (2001)). We report the results of the rare event logistic regression in Table C.4. All our hypothesized results are supported in this table and consistent with the logistic regression result with negligible difference in the estimates (coefficient, standard errors and significance level). The consistency and negligible bias correction factor between both models are supported by the fact that the number of rare events (155) is substantially higher relative to the total number cases (2013)¹.

Testing for endogeneity. Further, although we have controlled for numerous variables correlated with status and may influence the verdict, we may have omitted some other variables that may make status endogenous. To rule out endogeneity concerns in our status variable, we examined the main effect of status using an instrumental variable probit model (*ivprobit* in Stata 15). Since status was coded based on banks' network through the preferred banker lists of corporations, we expected that banks that invest more in corporate securities may be picked as preferred bankers more often than those of their peers that invest less in corporate securities. Hence, we used the natural log of share investments in a bank's asset portfolio as an instrument for status. We report these results in Table C.5. *Bank status* is highly significant in this model ($= -1.134$, $SE=0.227$, $p<0.001$), providing robustness to our findings about the impact of status on lawsuit outcomes. The Wald Chi-Square test of exogeneity is highly insignificant ($p=0.8674$) in this model, suggesting that status is unlikely to be endogenous.

3.7 Discussion

By re-examining the critical assumption of a persistent status halo underlying the well established Matthew Effect in a socialist setting, we built a more contextualized theory of status that considers the roles of leveling pressures in a society on the behavioral expectations it holds about high-status firms. The Matthew Effect holds that status is self-perpetuating due to the halo high-status actors enjoy in the society. Our results demonstrate that, in a socialist setting, a high status can be a liability for a corporation, especially when it is being evaluated on its integrity. However, what comes to the rescue of a high-status firm

¹King & Zeng (2001) noted that the effect of their proposed rare event logistic regression in correcting for the bias will be substantial when the total number of events is less than a few thousands with rare events accounting for less than 5%. Our rare events account for more than 5% of the outcomes (i.e. 7.7%) hence the negligible correction observed.

is its accumulated good karma – i.e., the evidence of its social responsibility that deviates from the expectations held by its skeptical audience.

The High Court in the Indian state of Kerala, which has a long history of socialism, was significantly biased against high-status banks when evaluating cases between them and their defaulting borrowers. But they ruled in favor of banks that were known for socially responsible behavior. Our finding is contrary to that observed in prior research on status-based biases in US courtrooms, which show that high-status firms benefit from the status halo in the courtroom (Nielsen *et al.* (2010); McDonnell & King (2018)). Our study makes important contributions to status theory and research on corporate misconduct. Below, we discuss each.

Our first contribution is to status theory, which has predominantly been developed within the confines of capitalist settings. It is widely understood that status is a desirable asset for firms in a free-market economy that promotes corporate aspirations and rewards high achieving firms. Lay evaluators are in awe of high-status firms, consumers, and suppliers vie to do business with them, and their competitors want to be them or be with them. An important by-product of this feature of status-based evaluations in a capitalist economy is a status halo, where the audience holds high expectations from high-status firms even in situations where it should not matter – such as in the courtrooms. This is especially so when there is ambiguity in assessing claims, like in lawsuits. So high-status firms get away with deviant behavior by riding on the halos their audience hold of them (Phillips & Zuckerman (2001)). High-status firms even transport their halo into courts to deal with objections raised by their weak stakeholders such as employees and customers (McDonnell & King (2018)).

But prior research on status-based advantages takes the halo as the baseline expectation and any deviation to it as an aberration based on overwhelming evidence that points to the contrary (Adut (2005); Hahl & Zuckerman (2014); McDonnell & King (2018)). They assume that the audience invariably holds high-status firms in high regard in every aspect of evaluation. We contribute to this body of research by showing that the assumption about the halo enjoyed by high-status firms is not universal. In a socialist economy, such as in Kerala, high-status firms are subject to severe leveling pressures, as the audience is skeptical about the means firms use to pursue their aspirations. So, the baseline expectation that the audience holds about firms is stacked against high-status firms unless they present overwhelming evidence that points to the contrary. The burden of proof in a socialist setting is on the high-status firm and not its audience. A high-status firm must prove its innocence through its actions as its audience tend to infer otherwise from its position in the social hierarchy.

While we have demonstrated that socialist courtroom holds a negative baseline evaluation about high-status firms, future research could examine if the biases against highstatus firms extend to settings that are not typically socialist in nature. Recent experimental

evidence suggests that even in capitalist settings, the audience may privately express their suspicion about high-status actors while publicly celebrating them. The audience may denigrate their heroes in public only when there is overwhelming and widely known evidence of their guilt (Hahl & Zuckerman (2014)). In socialist settings, however, the audience tends to publicly express their suspicion of high-status actors and consider them culpable even when there isn't ample evidence of their guilt. In our study, courtroom judgments were swayed by the public opinion generated by the party in power. Specifically, we find that high-status firms' negative evaluation in Kerala strengthened when a left-leaning party was in control. The west is no stranger to left-leaning parties rising to power riding on public opinion favoring social ends, such as environmental protection, progressive taxation, and public goods provision. For instance, in US politics, while the Democratic party is not a socialist party, there are socialist wings within it that blame corporate greed for a variety of the social ills in the US (Gautney (2018)). Hence, even in a capitalist setting, when a relatively left-leaning party comes to power, privately held suspicions of high-status morality are more likely to be expressed publicly. Should this left-wing become more prominent, as some political commentators expect (Howard (2019)), US courtrooms may witness more discrimination cases that are ruled against the high-status firms. Considering that courtroom biases have their origins in beliefs widely held in society (Edelman *et al.* (2011)), future research could examine whether left-leaning parties coming to power in capitalist settings might result in penalties for high-status firms in courtrooms akin to what we observed in a socialist setting.

Relatedly, our study also contributes to research on corporate misconduct by theorizing how firms may adapt their behavior to deal with society's subjective interpretation of deviance stacked against them. Prior research on organizational misconduct shows that high-status organizations have an edge in pursuing deviant means to achieve their aspirations because they are scrutinized less and enjoy the benefit of the doubt (Phillips & Zuckerman (2001); Jensen (2006); Jonsson *et al.* (2009); McDonnell & King (2018)). Although high-status firms found guilty of deviance in the market society often get away with it by issuing carefully crafted disclaimers (Phillips & Zuckerman (2001)), the audience does punish them severely when they demonstrably fail to meet the high integrity expectations held by their audience (Jensen (2006); Jonsson *et al.* (2009); McDonnell & King (2018)). It goes to show that the audience can revise their expectations in the light of new evidence. We contribute to this discussion by considering a setting where high-status firms are deemed guilty by position.

In our study, high-status firms were able to revise the negative bias held by their audience about them by acting in a manner that disconfirms those expectations. By lending to sections of the society deemed as priority sectors by the state, commercial banks in India could convince the Kerala High court of their innocence. So, whereas a high-status firm engaging in deviant behavior must hope that it does not get caught or that its au-

dience accepts its disclaimer under free-market capitalism, an innocent high-status firm in a socialist setting must expect that its audience sees past its status and evaluate it on the merit of its good deeds. Taken together, our study calls for a reconsideration of the assumptions underlying status research. Even though the audience may accept high-status actors' position, they may not associate it with high integrity when there is widespread suspicion about the means high-status actors use to ascend to their position and maintain it.

Similarly, we expect that status can be a liability even in the fringes of the capitalist economy routinely subject to leveling pressures. For instance, the informal market of the urban ghettos and ethnic enclaves in the US are subject to significant leveling pressures that suppress status aspirations. Producers gravitate towards these informal markets as a reaction to their alienation from mainstream markets, which is stacked against these low-status producers, who are even considered non-players in the mainstream markets by organizational theorists (Phillips & Zuckerman (2001)). One consequence of this is that producers in these informal markets display a collective egalitarian consciousness towards each other and consciously suppress their aspirations (Portes & Sensenbrenner (1993)). Social capital for them does not stem from their position in the social hierarchy, but from the solidarity and enforceable trust that they enjoy as a collective (Portes & Sensenbrenner (1993); Venkatesh (2006)). Even though some players do come to occupy socially advantageous positions in these markets (Sanders & Nee (1987)), such status-based advantages are merely fleeting in these markets (Venkatesh (2006)), as status aspirations are curbed by 'leveling pressures' in the informal economy (Portes & Sensenbrenner (1993)). Our study illuminates that one of these leveling pressures maybe the audience's biases against high-status players while evaluating their integrity claims.

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Appendix A

Exchange Rate of West African Currencies relative to USD

Currency	Stationarity	Final Model	Period	Forecast	Level:	Volatility
Nigeria (Naira)	Differenced I(1)	ARIMA(0,1,[1,3])GARCH(1,1)	Transition	MC	Oscillatory (2.33%)	Stable
				MMSE	Oscillatory (2.86%)	
			Post	MC	Oscillatory (0.75%)	Stable
	MMSE	Oscillatory (0.04%)				
	Differenced I(1)	ARIMA(0,1,[1,3])EGARCH(1,1)	Transition	MMSE	Oscillatory (3.25%)	Stable
				MC	Oscillatory (0.37%)	
Post			MMSE	Oscillatory (0.39%)	Stable	
	MC	Oscillatory (0.08%)				
Cape Verde (Escudo)	Differenced I(1)	ARIMA(0,1,1)GARCH(1,1)	Transition	MC	Appreciation (2.88%)	Stable
				MMSE	Appreciation (2.94%)	
			Post	MC	Oscillatory (2.01%)	Stable
				MMSE	Oscillatory (0.08%)	
Mauritania (Ouguiya)	Differenced I(1)	ARIMA(0,1,1)GARCH(1,1)	Transition	MC	Appreciation (2.62%)	Stable
				MMSE	Appreciation (2.53%)	
			Post	MC	Oscillatory (2.99%)	Stable
				MMSE	Appreciation (5.28%)	
CEFA (XOF)	Differenced I(1)	ARIMA(0,1,1)GARCH(1,1)	Transition	MC	Oscillatory (1.56%)	Stable
				MMSE	Oscillatory (1.57%)	
			Post	MC	Oscillatory (0.34%)	Stable
				MMSE	Oscillatory (1.15%)	
Gambia (Dalasi)	Differenced I(1)	ARIMA(0,1,[1,3,10])EGARCH(1,1)	Transition	MC	Appreciation (27.07%)	Stable
				MMSE	Appreciation (28.15%)	
			Post	MC	Appreciation (18.88%)	Stable
				MMSE	Appreciation (14.89%)	
	Detrended (breakpoints) (7/19/2002) (8/6/2003) (12/14/2006)	ARIMA([1:6],0,0)EGARCH(1,1)	Transition	MC	Downward Trend	Stable
				MMSE	Downward Trend	
Guinea (Franc)	Differenced I(1)	ARIMA(0,1,[3,8,10])	Transition	MC	Depreciation (12.96%)	1-time Spike
				MMSE	Depreciation (12.33%)	
	Post	MC	Appreciation (0.33%)	Stable		
		MMSE	Appreciation (0.03%)			
	Detrended (breakpoints) (7/15/2004) (5/31/2005) (4/20/2007)	ARIMA([1,3,9],0,0)	Transition	MC	Oscillatory	Stable
				MMSE	Oscillatory	
Post	MC	Downward Trend	Stable			
	MMSE	Downward Trend				

Table A.1: Result of USD vs West African currencies

This table summarizes the results obtained from the analyses of the West African currencies with respect to the USD both in the transition and post-transition period. At 5% significance, there is no evidence to support any significant changes in these West-African currencies.

Other Redenominated Currencies vs USD

Currency	Stationarity	Final Model	Period	Forecast	Level:	Volatility
					Deviation from Path	
Turkey (Lira)	Differenced (I(1))	ARIMA(0,1,1)GJR(1,1)	Transition	MC	Depreciation (6.52%)	Stable
				MMSE	Depreciation (8.33%)	
			Post	MC	Oscillatory(0.71%)	Stable
				MMSE	Oscillatory(1.93%)	
Mozambique (Metical)	Differenced (I(1))	ARIMA([1:4],1,0)EGARCH(1,1)	Transition	MC	Depreciation (4.15%)	Stable
				MMSE	Depreciation (3.32%)	
			Post	MC	Oscillatory (0.5%)	Stable
				MMSE	Oscillatory(1.25%)	
Zambia (Kwacha)	Differenced (I(1))	ARIMA(1,1,1)GARCH(1,1)	Transition	MC	Depreciation (3.4%)	Stable
				MMSE	Depreciation (2.68%)	
			Post	MC	Oscillatory (1.48%)	Stable
				MMSE	Oscillatory (1.1%)	

Table A.2: Result of Other Redenominated Currencies and USD

This table summarizes the results obtained from the analyses of the other redenominated currencies with respect to major trading currency (USD) both in the transition and post-full redenomination period. At 5% significant level, there is no evidence to support significant changes in their currencies during adoption of their respective redenomination policies.

MC Simulated Exchange Rate Forecast: Ghana Cedi relative to USD

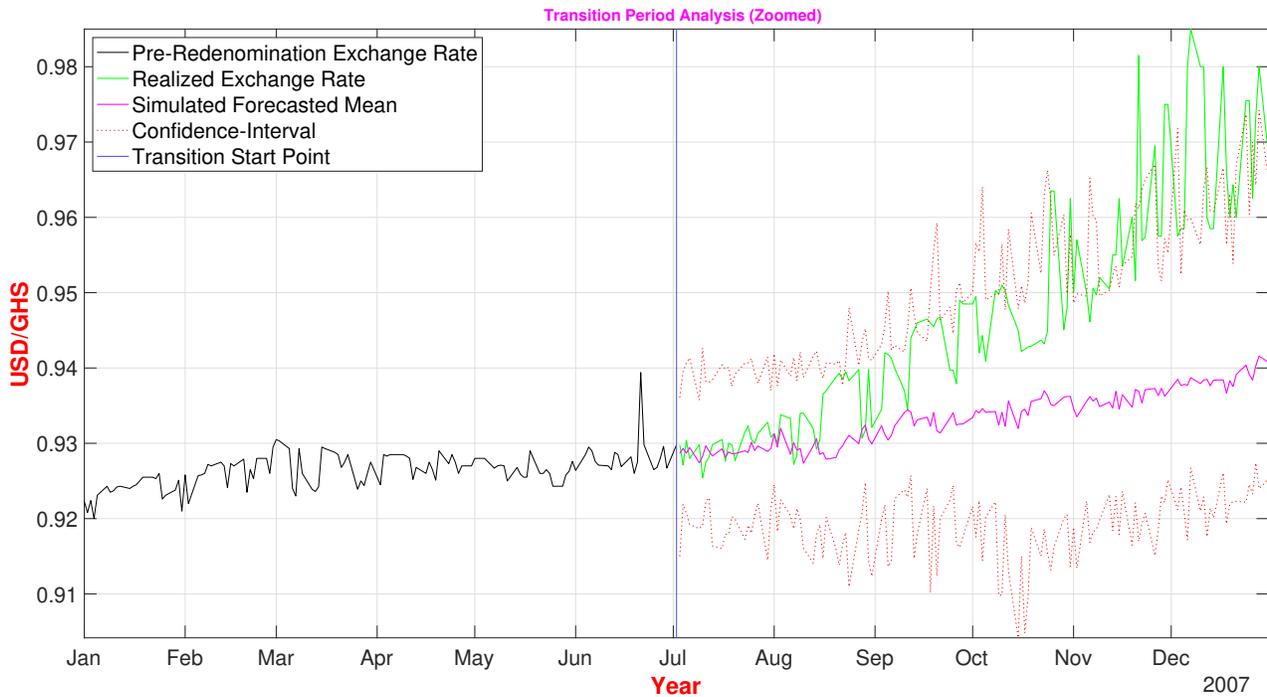


Figure A.1: Level Movement: Cedi vs USD : Truncated (Jan-2007 to Dec-2007)

MC Simulated Forex Forecast: Ghana Cedi relative to USD Exchange Rate

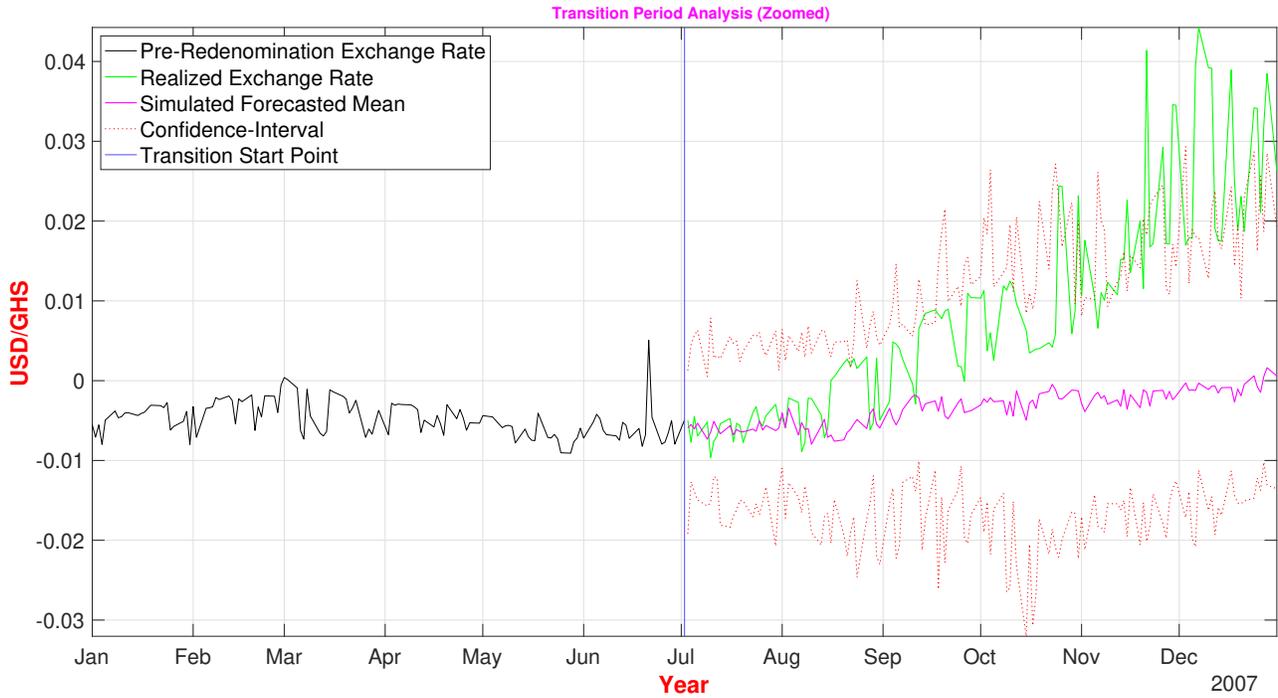


Figure A.2: Trend Movement: Cedi vs USD : Truncated (Jan-2007 to Dec-2007)

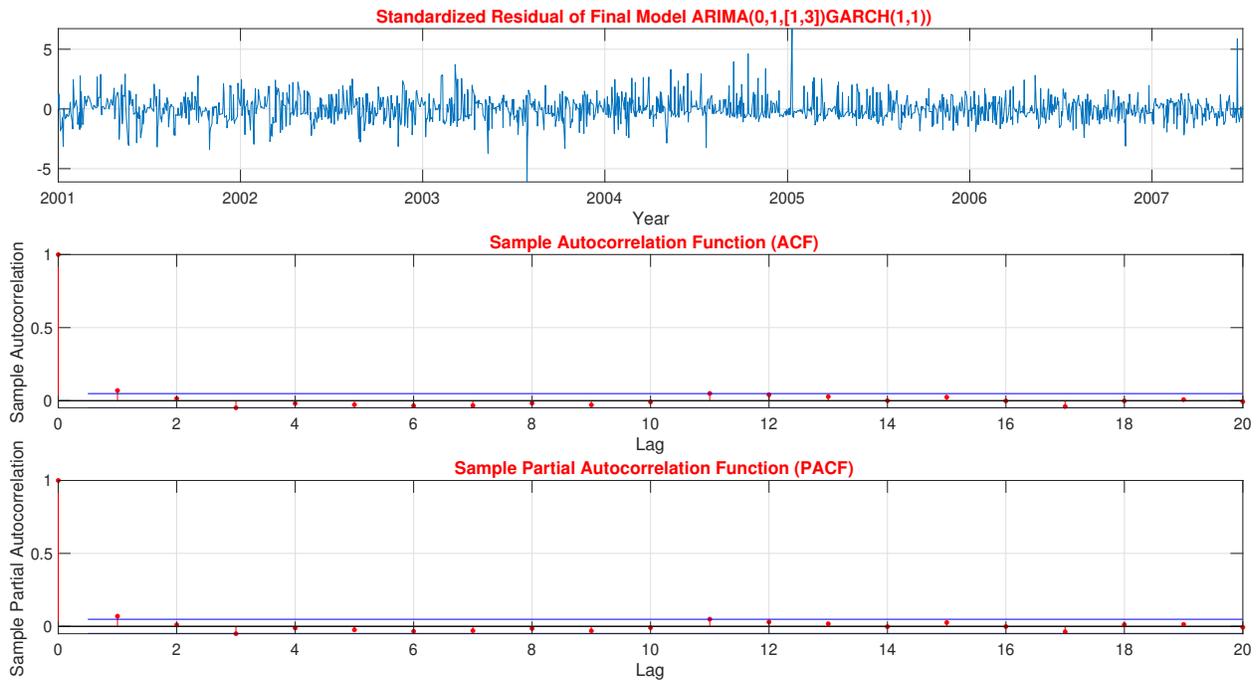


Figure A.3: Diagram of ACF/PACF Plots.

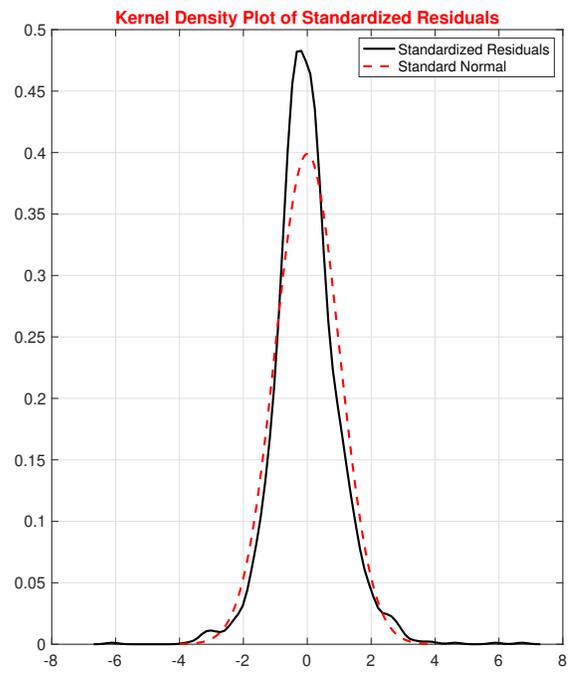
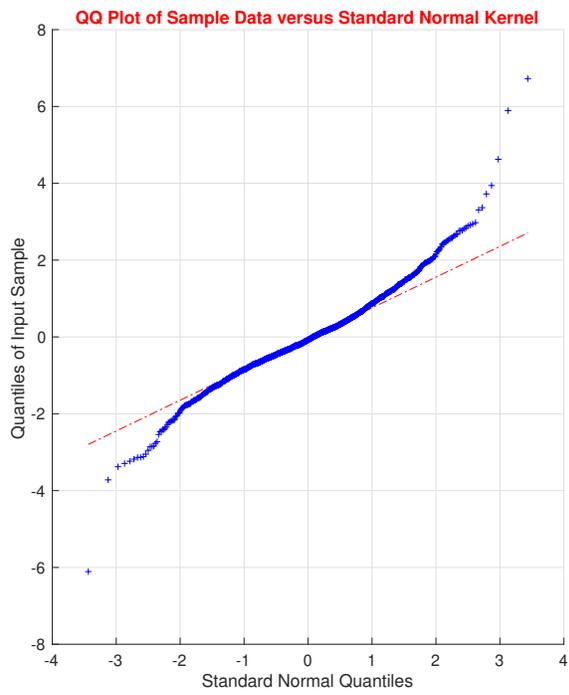


Figure A.4: Diagram of QQ and Normality Plots

Appendix B

SAMPLE OF DESIGNED EXPERIMENT ATTACHED BELOW

Consent for Participation in Social & Behavioral Research

I consent to participating in research entitled: Social and Behavioral Research.

Farouk Abdul-Salam (Principal Investigator) has explained the purpose of the study, the procedures to be followed, and the expected duration of my participation. Possible benefits of the study have been described, as have alternative procedures, if such procedures are applicable and available.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me. I have had the opportunity to ask questions and to obtain answers to my questions.

I can contact the investigator. If I have any concerns about my rights as a research participant and/or my experiences while participating in this study, I may contact Director, Office of Research Ethics at Simon Fraser University.

Finally, I acknowledge that I have read and fully understand the consent form. I signed it freely and voluntarily. A copy has been given to me.

Important: Explaining the Game

1. Relationship between Goods and Points

In this game there are two or more goods (i.e. Good A and Good B etc) that earn you points if you purchase them

Each good is associated with a **diminishing marginal value/number of points**.

This means that the more you buy a particular good, the less value/points you will get for each additional purchase.

Example

With reference to the table below, if you buy Good A, the **FIRST** unit generates **100 points**.

If you decide to buy a **SECOND** Good A, you get will an additional **90 points**. Your total points will be **190 points**

HOWEVER, if you decide to buy Good B on your **SECOND** purchase, you will receive **100 points** since that will be your first Good B purchase. Your Total Points will then be **200 points** instead of **190 points**

2. Relationship between Goods and Currencies

In this game there are two or more currencies (i.e. **Currency A\$ and Currency B\$ etc**).

You will need **Currency A to buy Good A**, **Currency B to buy Good B**, **Currency C to buy Good C** etc.

Your initial **ENDOWMENT of MONEY** will be in **Currency A\$**

You will have to **CONVERT** your Currency A\$ Money to B\$ in stage 1 in order to purchase Good B.

Finally, you will be shown the **NOMINAL EXCHANGE RATE** which shows how many units of Currency B\$ can be purchased with one unit of Currency A\$

Example

Nominal Rate of A\$1=B\$10 means 1 A\$-Currency will give you 10 B\$-Currency and by **converting A\$3 you will receive B\$30**

Nominal Rate of A\$1=C\$2 means 1 A\$-Currency will give you 2 C\$-Currency and by **converting A\$5 you will receive C\$10**

Table of Points and Price in Country A and B

Point per Country	Goods A in Country A ONLY	Goods B in Country B ONLY
1st Purchase Point	100	100
2nd Purchase Point	90	90
3rd Purchase Point	75	75
Prices per Good	A\$1	B\$1

EXAMPLE 2: Helping You Understand.

The table below will help you understand the game.

Your Purchase Decision	Points Earned in Country A	Points Earned in Country B	Total Points from Country A & B	Amount Spent in Country A	Amount Spent in Country B
1 Good A & 1 Good B	100 points	100 points	100 + 100 = 200 points	A\$1	B\$1
3 Good A & 2 Good B	100 + 90 + 75 = 265 points	100 + 90 = 190 points	265 + 190 = 455 points	A\$3	B\$2

Testing Your Understanding

Farouk Abdul-Salam, let's test your understanding of the game.

What will be your points if you purchase one (1) Good A and two (2) Good B? :

With Nominal Exchange Rate of $A\$1=B\5 , how much of Currency B\$ will you receive if you CONVERT A\$3? :

Next

Information on the Stages, Rounds & Payment

Stages in the Game

Below are the stages in this game. The stages outlined below will be repeated throughout this game.

1. Stage 1

Conversion/Exchange: In this stage, you have an endowment of money in the A\$ Currency

You will need to convert to Currency B\$ if you want to buy Good B, Currency C\$ if you want to purchase Good C etc.

**NOTE: All currencies will then be automatically spent on the available goods.
(Fractions/Decimals are allowed (e.g you can buy 1.5 of a Good etc)).**

Currency B\$ will be used to purchase Good B; Currency C\$ will be used to purchase Good C.

2. Stage 2

Points Earned: Points you earned based on your purchase in stage 1 will be displayed after every round.

You will be **REWARDED** based on the **TOTAL POINTS** you earn.

CALCULATORS/CONVERTERS: OPTIONAL Points and Currency Calculators will be provided to you.

Rounds in the Game

You will play **four rounds (4)** of this game. The games may differ in terms of information and the number of currencies/goods. After you complete the four rounds, you will be asked to fill in a **brief questionnaire**.

MAXIMUM TIME FOR EACH ROUND IS 15 MINUTES

Payment

1. Points Earned

Points Earned: The points you earn on every stage will be recorded.

At the end of the game, one of the rounds will be chosen.

Points earned in the chosen round will be recorded.

Next

Welcome to Round 1 Farouk Abdul-Salam!!!

Information

1. Stage 1

Conversion/Exchange: In this stage, you have an endowment of money in **Currency A\$**

There are 2 Goods available to purchase (Good A and Good B).
You may purchase Good A and/or Good B.

NOTE:You can only purchase the Good B with Currency B\$.
(Fractions/Decimals are allowed (e.g. 1.5 of a Good etc))

2. Stage 2

Points Earned: Points you earned based on your purchase will be displayed on the NEXT PAGE.

CALCULATORS/CONVERTERS: OPTIONAL Points and Currency Calculators will be provided to you.

Farouk Abdul-Salam, the maximum Time for this ROUND is 15 MINUTES

Choose a toss

Farouk Abdul-Salam, please pick the tosses of your choice below before moving to the next page.

First Toss

Which of the following tosses will you choose here?

- Head Head
- Head Tail
- Tail Head
- Tail Tail

Second Toss

Which of the following tosses will you choose here?

- Head Head
- Head Tail
- Tail Head
- Tail Tail

Next

Round 1

Time left to complete this page: 14:54

Please use the information provided to make your decision on how much of your **A\$-Currency** you want to **CONVERT** into the **B\$-Currency**.

Information:

1. Nominal Exchange Rate

A\$1=B\$15.

This means **(ONE) A\$** Currency will give you **15 B\$** Currency

2. Your Original Endowment

You have A\$70

3. Price Information

Price Information

	Good A	Good B
Price Per Good	A\$10 or B\$150	A\$8.5 or B\$127.5

This means that Good B is **CHEAPER** than Good A

Table of Diminishing Points in Countries A and B

Point per Country	Goods A	Good B
1st Purchase	380.0	380.0
2nd Purchase	282.0	282.0
3rd Purchase	254.0	254.0
4th Purchase	237.0	237.0
5th Purchase	225.0	225.0
6th Purchase	216.0	216.0
7th Purchase	209.0	209.0

NOTE:(Fractions/Decimals are allowed (e.g you can buy 1.5 of a Good etc)) and the more you buy from one particular country, the less additional/marginal points you receive

Calculator

Goods to Points Converter

You can Enter the Quantity of Good of A or B to See the Points Equivalent.

Good A: Points:

Good B: Points:

Currency Converter

You can Enter the Currency A\$ to see its Currency B\$ Equivalent

CurrencyA\$: CurrencyB\$:

How much do you want to convert from your A\$-Currency Endowment/Money to buy Good B?.

The remainder of A\$ after your conversion will be used to purchase Good A

(NOTE: You have A\$70 Endowment/Money and A\$1 will give you B\$15)

Next

Round 1 Results

Endowment/Money Portfolio You Formed

A\$ Endowment/Money	B\$ Endowment/Money
A\$47.0	B\$345.0
Price of Good A=A\$10 or B\$150	Price of Good B= A\$8.5 or B\$127.5

Your Country A Earnings

Your **A\$47.0** Money was able to buy **4.7 Good A**

Hence the points you earned from the Country A is **1310.58 points** .

Your Country B Earnings

Your **B\$345.0** Money was able to buy **2.71 Good B**

Hence points you earned from the Country B is **842.62 points** .

Your Total Points Earnings

Your **Total Points** from both countries is **2153.19 POINTS**

Next

Welcome to Round 2 Farouk Abdul-Salam !!!

Information

1. Stage 1

Conversion/Exchange: In this stage, you have an endowment of money in the **A\$ Currency**

There are 2 Goods available to purchase. You may purchase Good A and/or Good B

However, the Price for Good B can increase or decrease with 50% chance.

NOTE: You can only purchase the Good B with Currency B\$.
(Fractions/Decimals are allowed (e.g 1.5 of Good))

2. Stage 2

Points Earned: Points you earned based on your conversion will be displayed **AFTER ROUND 4.**

CALCULATORS/CONVERTERS: OPTIONAL Points and Currency Calculators will be provided to you.

Farouk Abdul-Salam, the maximum time for this ROUND is 15 MINUTES

Next

Round 2

Time left to complete this page: 14:57

Please use the information provided to make your decision on how much of your **A\$-Currency** you want to **CONVERT** into any of the Currencies below.

Information:

1. Nominal Exchange Rate

	Currency B
Nominal Exchange Rate	A\$1=B\$20

This means 1A\$ will give you 20B\$.

2. Your Original Endowment

You have A\$40

3. Price of Good A

The Price of Good A is A\$5.5 or (B\$110 in Currency-B\$)

4. Price Distribution Information for Goods B

Price Distribution Information

Probability/Chance	Good B Price
50% Chance of Good B Decrease	A\$4.95 or B\$99
50% Chance of Good B Increase	A\$6.05 or B\$121

This means that the Price of Good B can increase to A\$6.05 (i.e. Expensive Good B) or decrease to A\$4.95 (i.e. Cheap Good B) with 50% Chance

Table of Diminishing Points Countries A and B

Point per Country	Goods A	Good B
1st Purchase	400.0	400.0
2nd Purchase	296.0	296.0
3rd Purchase	267.0	267.0
4th Purchase	249.0	249.0
5th Purchase	237.0	237.0
6th Purchase	228.0	228.0
7th Purchase	220.0	220.0

NOTE:(Fractions/Decimals are allowed (e.g you can buy 1.5 of a Good etc) and the more you buy from one particular country, the less additional/marginal points you receive

Calculator

Goods to Points Converter

You can Enter the Quantity of Good of A or B to See the Points Equivalent.

Good A: Points:

Good B: Points:

Currency Converter

You can Enter the Currency A\$ to see its Currency B\$

CurrencyA\$: CurrencyB\$:

How much do you want to convert from your A\$-Currency Endowment/Money?

(NOTE: You have A\$40 Endowment/Money and A\$1 will give you B\$20)

Next

Welcome to Round 3 Farouk Abdul-Salam!!!

Information

1. Stage 1

Conversion/Exchange: In this stage, you have an endowment of money in the A\$ Currency

There are 2 Goods available to purchase. You may purchase Good A and/or Good B

However, the Nominal Exchange Rate (i.e. Amount of your Currency B\$) can increase or decrease with 50% chance.

(Fractions/Decimals are allowed (e.g. 1.5 of Good etc))

2. Stage 2

Points Earned: Points you earned based on your purchase in stage 1 will be displayed on the NEXT PAGE .

CALCULATORS/CONVERTERS: OPTIONAL Points and Currency Calculators will be provided to you.

Farouk Abdul-Salam, the maximum time for this ROUND is 15 MINUTES

Next

Round 3

Time left to complete this page: 14:57

Please use the information provided to make your decision on how much of your **A\$-Currency** you want to **CONVERT** into the B-Currency.

Information:

1. Your Original Endowment

You have **A\$35**

2. Nominal Exchange Rate

Original Rate: A\$1=B\$10.

This means 1 A\$ Currency will give you 10 B\$ Currency

3. Nominal Exchange Rate Uncertainty/Risk Information

Probability/Chance	Nominal Exchange Rate
50% Chance of Decrease	A\$1 = B\$9
50% Chance of Increase	A\$1 = B\$11

This means the amount you CONVERT to Currency B\$ can INCREASE or DECREASE before the next Points Stage

4. Price Information

Price Information

	Good A	Good B
Price Per Good	A\$5 or B\$50	A\$4.25 or B\$42.5

This means that Good B are **CHEAPER** than Good A

Table of Diminishing Points in Countries A and B

Point per Country	Goods A	Good B
1st Purchase	420.0	420.0
2nd Purchase	311.0	311.0
3rd Purchase	280.0	280.0
4th Purchase	262.0	262.0
5th Purchase	249.0	249.0
6th Purchase	239.0	239.0
7th Purchase	231.0	231.0
8th Purchase	225.0	225.0
9th Purchase	219.0	219.0

NOTE:(Fractions/Decimals are allowed (e.g you can buy 1.5 of a Good etc)) and the more you buy from one particular country, the less additional/marginal points you receive

Calculator

Goods to Points Converter

You can Enter the Quantity of Good of A or B to See the Points Equivalent.

Good A: Points:

Good B: Points:

Currency Converter

You can Enter the Currency A\$ to see its Currency B\$ Equivalent

CurrencyA\$: CurrencyB\$:

How much do you want to convert from your A\$-Currency Endowment?

**(NOTE: You have A\$35 Endowment/Money;
A\$1 will give you B\$10 and it can increase or decrease)**

Round 3 Results

Endowment/Money Portfolio You Formed

The realized state is **LOW/DEPRECIATION (i.e 1A\$ = 9B\$)**. This means Currency B\$'s value has changed and below are the results

A\$ Endowment/Money	B\$ Endowment/Money
A\$25.0	B\$90.0
Price of Good A= A\$5 or B\$50	Price of Good B= A\$4.25 or B\$42.5

Your Country A Earnings

Your **A\$25.0** Money was able to buy **5.0 Good A**

Hence the points you earned from Country A is **1522.04 points** .

Your Country B Earnings

Your **B\$90.0** Money was able to buy **2.12 Good B**

Hence points you earned from the Country B is **765.48 points** .

Your Total Points Earnings

Your **Total Points** from both countries is **2287.51 POINTS**

Next

Round 4

Time left to complete this page: 14:51

Please use the information provided to make your decision on how much of your **A-Currency** you want to **CONVERT** to **B-Currency**.

Information:

1. **Nominal Exchange Rate**

A\$1=B\$350

This means 1A\$ will give you 350B\$

2. **Your Original Endowment**

You have A\$80

3. **Price Information**

Price Information

	Good A	Good B
Prices per Good	10.5A\$ or B\$3675.0	A\$8.4 or B\$2940.0

This means Good B is **CHEAPER** than Good A

Table of Diminishing Points in Countries A and B

Point per Country	Good A	Good B
1st Purchase	480.0	480.0
2nd Purchase	356.0	356.0
3rd Purchase	320.0	320.0
4th Purchase	299.0	299.0
5th Purchase	284.0	284.0
6th Purchase	273.0	273.0
7th Purchase	264.0	264.0

NOTE:(Fractions/Decimals are allowed (e.g you can buy 1.5 of a Good etc) and the more you buy from one particular country, the less additional/marginal points you receive

Calculator

Goods to Points Converter

You can Enter the Quantity of Good of A or B to See the Points Equivalent.

Good A: Points:

Good B: Points:

Currency Converter

You can Enter the Currency A\$ to see its Currency B\$ Equivalent

CurrencyA\$: CurrencyB\$:

How much do you want to convert from your A\$-Currency Endowment/Money?

(NOTE: You have A\$80 Endowment/Money)

Next

Round 4 Results

Endowment/Money Portfolio You Formed

A\$ Endowment/Money	B\$ Endowment/Money
A\$57.0	B\$8050.0
Price of Good A=A\$10.5 or B\$3675.0	Price of Good B=A\$8.4 or B\$2940.0

Your Country A Earnings

Your **A\$57.0** Money was able to buy **5.43 Good A**

Hence the points you earned from Country A is **1857.76 points** .

Your Country B Earnings

Your **B\$8050.0** Money was able to buy **2.74 Good B**

Hence points you earned from Country B is **1074.48 points** .

Your Total Points Earnings

Your **Total Points** from both countries is **2932.24 POINTS**

Next

Round 2 Results

Endowment/Money Portfolio You Formed

The realized price is **Low Good B Price (i.e A\$4.95 or B\$99.0)**. Below are the results

A\$ Endowment/Money	B\$ Endowment/Money
A\$8.0	B\$640.0
Price of Good A= A\$5.5 or B\$110.0	Price of Good B= A\$4.95 or B\$99.0

Your Country A Earnings

Your **A\$8.0** Money was able to buy **1.45 Good A**

Hence the points you earned from Country A is **539.81 points** .

Your Country B Earnings

Your **B\$640.0** Money was able to buy **6.46 Good B**

Hence points you earned from Country B is **1780.31 points** .

Your Total Points Earnings

Your **Total Points** from both countries is **2320.12 POINTS**

Next

Questionnaire

Please answer the following questions.

How many countries have you visited apart from your country of residence?

What is your Highest Level of Education ?

- Junior High
- Senior High
- Diploma
- First Degree
- Masters
- PhD/Doctorate

What is your Educational Background ?

- Economics
- Mathematics
- Statistics
- Engineering
- Literature
- Geography
- Sociology
- Psychology
- Philosophy
- Medical Science
- Archeology
- Other

If Other, indicate in the box below:

Which Country or Countries have you spent much of your life in ?

Kindly leave a COMMENT on what you think influenced your decision on the money conversion.

Kindly click [next](#) to see the chosen round and the points you earned in this game.

Next

Appreciation Page

Thank You Very Much Farouk Abdul-Salam!!!

This is the **END** of the game.

Round 3 was chosen randomly as your Payment Round

Your total points there was **2287.51-POINTS**

You will receive a **GIFT CARD or an ECONOMICS BOOK** if your points is one of the highest.

I truly appreciate your time and effort.

Next

Figure B.1: Sample of Designed Experiment

Appendix C

Chapter 3

TABLES AND FIGURE BELOW

Table C.1: Summary Statistics and Correlation Matrix

ID	Covariates	Mean	SD.	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Favored Outcome	0.92	0.27													
2	Size	21.16	33.14	0.04												
3	Performance	0.01	0.0	-0.09	0.14											
4	Asset Quality	0.02	0.01	0.04	0.39	0.02										
5	Listings	0.92	0.27	0.03	0.18	0.42	0.25									
6	Legal Exp.	13.20	26.35	0.04	0.94	0.10	0.39	0.14								
7	Advertisement Exp.	31.87	55.23	0.06	0.90	0.12	0.40	0.16	0.89							
8	State-Owned	0.65	0.48	0.05	0.30	0.01	0.24	0.41	0.21	0.21						
9	Win Rate	0.86	0.20	0.21	0.08	-0.10	0.15	0.07	0.09	0.09	0.10					
10	Case Cited	0.12	0.88	-0.13	-0.02	-0.01	0.01	-0.08	-0.02	-0.02	-0.03	-0.03				
11	Acts Cited	0.75	1.06	-0.05	-0.07	0.08	0.01	-0.01	-0.06	-0.04	-0.03	-0.09	0.38			
12	Communist	0.36	0.48	-0.18	-0.22	0.41	-0.20	-0.15	-0.21	-0.28	-0.24	-0.26	0.07	0.08		
13	Social Lending	0.31	0.09	-0.01	-0.12	0.43	0.28	0.61	-0.13	-0.19	0.16	0.06	-0.01	0.03	0.21	
14	Status	1.13	1.08	-0.03	-0.13	0.21	-0.12	0.29	-0.17	-0.13	0.28	-0.02	-0.03	0.05	0.09	0.40

N = 2013

Table C.2: Distribution of Cases in Different Political Regimes

Political Regime	Year	Losses	Wins	Total
LDF	2006	0	5	5
	2007	8	37	45
	2008	21	110	131
	2009	21	121	142
	2010	52	348	400
UDF	2011	24	305	329
	2012	8	312	320
	2013	10	257	267
	2014	9	314	323
	2015	2	49	51

Table C.3: GEE Estimates for Outcome of Debt Recovery Lawsuits Favoring Banks

Covariates	Model 1	Model 2	Model 3	Model 4	Model 5
Bank Size	-0.02* (0.01)	-0.01* (0.01)	-0.01 (0.01)	-0.02** (0.01)	-0.01 (0.00)
Bank Performance	-106.53*** (27.82)	-84.99** (27.68)	-76.91** (27.30)	-107.74*** (20.67)	-85.67*** (23.96)
Bank's Asset Quality	-25.38** (9.78)	-24.68** (9.53)	-23.14* (9.65)	-28.23** (9.06)	-22.94* (9.21)
Listed Banks	-0.63 (0.75)	-0.27 (0.51)	-0.22 (0.55)	-0.31 (0.44)	-0.05 (0.32)
Bank's Legal Expenses	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)
Bank's Advertisement Expenses	0.02** (0.01)	0.02** (0.01)	0.01* (0.01)	0.02** (0.01)	0.01* (0.01)
State-Owned Banks	0.42*** (0.10)	0.28 (0.21)	0.45** (0.17)	0.37** (0.13)	0.41*** (0.09)
Bank's Win Rate	1.96*** (0.20)	1.89*** (0.18)	1.95*** (0.18)	1.83*** (0.19)	1.86*** (0.17)
Number of Case Cited	-0.27*** (0.05)	-0.27*** (0.06)	-0.27*** (0.06)	-0.28*** (0.06)	-0.28*** (0.06)
Number of Acts Cited	0.09 (0.13)	0.10 (0.13)	0.09 (0.13)	0.11 (0.13)	0.11 (0.13)
Communist in Power	-0.95*** (0.27)	-0.83*** (0.21)	-0.38 (0.31)	-0.96*** (0.23)	-0.35 (0.29)
Socially Responsible Lending	6.47*** (1.48)	5.23*** (1.52)	4.65** (1.50)	5.57*** (1.21)	3.56** (1.17)
Bank Status		-0.21* (0.09)	-0.00 (0.12)	-1.51*** (0.35)	-1.50*** (0.38)
Bank Status			-0.37* (0.16)		-0.47*** (0.14)
X Communist in Power				4.16*** (1.11)	4.91*** (1.22)
Bank Status					
X Socially Responsible Lending					
Constant	1.13* (0.46)	1.20** (0.42)	0.87* (0.44)	1.34** (0.43)	1.03* (0.42)
Chi Square	1234.659	281.348	601.810	1662.669	2672.879

N = 2013 lawsuits involving 58 commercial banks.

Robust standard errors in parentheses;

Observations clustered by bank to account for non-independence

Significance levels: * p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

Table C.4: Rare Event Logit Estimates for Outcome of Debt Recovery Lawsuits Favoring

Covariates	Model 1	Model 2	Model 3	Model 4	Model 5
Bank Size	-0.01 (0.01)	-0.01* (0.01)	-0.01 (0.00)	-0.01* (0.01)	-0.01 (0.00)
Bank Performance	-76.47* (30.64)	-80.74** (27.46)	-69.29* (27.57)	-85.32*** (24.18)	-74.04** (25.04)
Bank's Asset Quality	-18.49* (9.22)	-23.31* (9.46)	-20.51* (9.56)	-23.52* (9.36)	-20.15* (9.55)
Listed Banks	-0.26 (0.45)	-0.22 (0.51)	-0.08 (0.49)	-0.08 (0.37)	0.12 (0.31)
Bank's Legal Expenses	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Bank's Advertisement Expenses	0.02** (0.01)	0.02** (0.01)	0.01* (0.01)	0.02* (0.01)	0.01* (0.01)
State-Owned Banks	0.12 (0.18)	0.30 (0.20)	0.41* (0.19)	0.22 (0.19)	0.33* (0.17)
Bank's Win Rate	1.89*** (0.19)	1.88*** (0.18)	1.92*** (0.18)	1.83*** (0.18)	1.86*** (0.18)
Number of Case Cited	-0.25*** (0.06)	-0.26*** (0.06)	-0.26*** (0.06)	-0.26*** (0.06)	-0.27*** (0.06)
Number of Acts Cited	0.10 (0.13)	0.10 (0.12)	0.09 (0.12)	0.11 (0.13)	0.11 (0.13)
Communist in Power	-0.87*** (0.26)	-0.82*** (0.21)	-0.39 (0.31)	-0.88*** (0.22)	-0.36 (0.30)
Socially Responsible Lending	4.05** (1.41)	4.95** (1.51)	3.99** (1.47)	4.33** (1.34)	2.92* (1.32)
Bank Status		-0.21* (0.09)	-0.04 (0.11)	-1.04* (0.40)	-1.24** (0.42)
Bank Status			-0.33* (0.15)		-0.42** (0.13)
X Communist in Power				2.60* (1.17)	3.92** (1.31)
Bank Status					
X Socially Responsible Lending					
Constant	1.20** (0.43)	1.15** (0.42)	0.86* (0.44)	1.28** (0.44)	0.99* (0.44)

N = 2013 lawsuits involving 58 commercial banks.

Robust standard errors in parentheses;

Observations clustered by bank to account for non-independence

Significance levels: * p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

Table C.5: Instrumental Variable Probit for Outcome of Debt Recovery Favoring Banks

Covariates	Model 1
Bank Size	-0.01
Bank Size	-0.01 (0.01)
Bank Performance	4.88 (69.31)
Bank's Asset Quality	-29.74** (11.33)
Listed Banks	-0.43 (0.60)
Bank's Legal Expenses	-0.00 (0.00)
Bank's Advertisement Expenses	0.00 (0.00)
State-Owned Banks	0.86* (0.38)
Bank's Win Rate	-0.10 (1.41)
Number of Case Cited	-0.06 (0.19)
Number of Acts Cited	0.06 (0.07)
Communist in Power	-0.06 (0.42)
Socially Responsible Lending	7.31* (3.09)
Bank Status	-1.13*** (0.23)
Constant	-0.30 (0.73)
Chi-Square	146.023
Log-Likelihood	-3089

N = 2013 lawsuits involving 58 commercial banks.

Robust standard errors in parentheses;

Observations clustered by bank to account for non-independence

Significance levels: * p<0.05, ** p<0.01, *** p<0.001 (two-tailed tests)

Wald test of exogeneity (corr = 0): chi2(1) = 0.03 | Prob > chi2 = 0.8674

Figure 1: Moderating Effect of Communist Party in Power

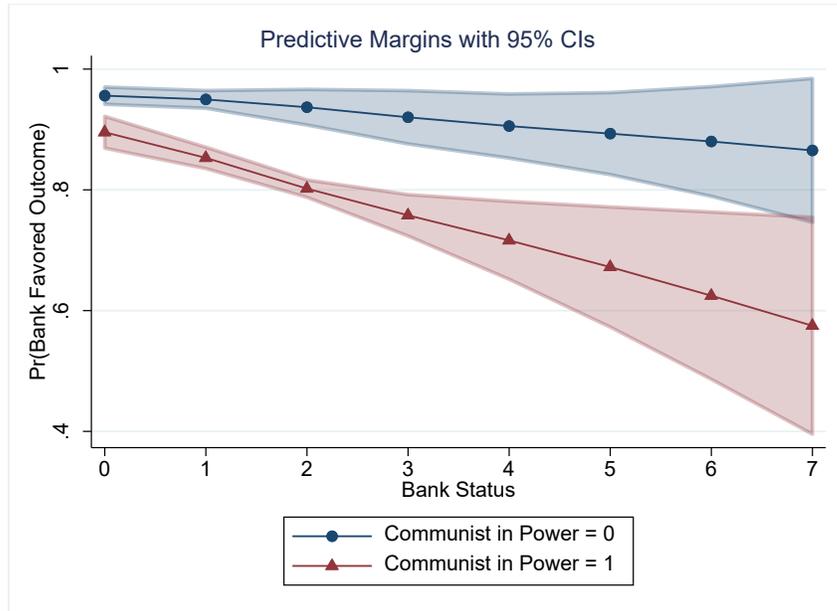


Figure 2: Moderating Effect of Socially Responsible Lending

