THE CURRENCY UNION EFFECT ON TRADE: THE ROLE OF FINANCIAL DEVELOPMENT

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A thesis presented in partial fulfillment of the requirements for completion
Of the Bachelor of Arts degree in International Studies
Croft Institute for International Studies
Sally McDonnell Barksdale Honors College
The University of Mississippi

University, Mississippi
May 2014

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Abstract

The effect of currency union formation on trade growth may depend on an economy's level of financial development. Economies with lower levels of financial development have less capacity to hedge exchange rate risk, are susceptible to hysteresis, and have little to overcome the large fixed costs of entering foreign markets. These barriers may be partially overcome through the use of common currencies. Economies with high levels of financial development may already be capable of overcoming these barriers to trade and will likely not gain significant trade from common currency formation. This paper tests the hypothesis that the currency union effect on trade varies across levels of financial development using gravity model data from Glick and Rose (2001) and over 219,000 observations of financial development between 1960 and 1997. The findings of this research support the paper's hypothesis and motivate important policy considerations for nations contemplating common currency formation.

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Introduction

Currency union formation remains a contentious policy decision for nations looking to grow international trade. In 2013, Latvia entered the Eurozone as the first of many E.U. members planning to join within the next few years. Meanwhile, the African nations of Tanzania, Burundi, Kenya, and Rwanda finalized plans to create a currency union within the decade. Nonetheless, skeptics of currency integration continue to challenge the policy across Europe, Africa, and the world. A 2013 poll showed that 50 percent of Latvians opposed joining the Eurozone ("RT," 2014), and IMF director Christine Lagard warned East African policymakers that rushing toward common currency formation could upset the recent trend of economic growth in the region (Omondi, 2014). These instances of common currency controversy necessitate a renewed effort to understand the currency union effect on trade.

Currency unions have the capacity to end unstable monetary policy, encourage economic integration, and facilitate international trade growth. Most research holds that the overall growth in trade from currency union formation outweighs the negative effects of forfeited monetary sovereignty and loss of seigniorage inherent to currency integration. To date, the trade growth caused by currency union formation is estimated to be anywhere from marginal (Tenreyro 2001) to over 300 percent growth in trade (Rose 2000). Such a wide disparity between these estimates of the currency union effect on trade motivates this paper's research question.

This paper attempts to strengthen the understanding of the currency union effect by testing whether the currency union effect on trade varies across levels of financial development. A number of observations motivate this hypothesis. First, significantly more countries with low levels of financial development fix their

exchange rates and join currency unions (Shu and Ye, 2011: 641). This observation may reflect a perception that countries with low levels of financial development stand to gain more from currency union formation. Additionally, theory suggests that firms tend to trade more in the international market when given access to high levels of financial development as higher access to credit allows for international expansion by providing a means for firms to hedge exchange rate risks, eliminate hysteresis, and overcome the large fixed costs of foreign market entry. This theory gives rise to two questions. First, can an economy experience the benefits of a highly developed financial system by joining a currency union? Second, previous research shows that currency unions have the ability to lower all the aforementioned barriers to trade; consequently, will the currency union effect on trade be stronger for economies with low levels of financial development?

This paper finds that the currency union effect on trade is stronger for economies with low levels of financial development and weaker for economies with higher levels of financial development. This suggests that nations with lower levels of financial development stand to gain more trade from currency union formation as opposed to their more financially developed counterparts. The paper begins by providing a literature review of theoretical and empirical studies relevant to the research question. The literature review first addresses studies on the currency union effect on trade before turning to the relevant theory and empirics from the financial development-trade nexus. From there, the paper works through the methodology used to answer the research question and describes the data used for testing the hypothesis. The paper ends with a brief conclusion and several policy recommendations.

Literature Review

The Rose Effect

In "One Money, One Market: The Effect of Common Currencies on Trade," Andrew Rose examines the effect of a currency union on trade and finds a large, positive effect. Specifically, Rose showed through cross-sectional analysis that countries with common currencies trade up to three times more with one another than countries without a common currency. Rose's paper was monumental in the study of international trade; Jeffrey Frankel regarded the work as "the most influential economics paper of the past ten years" (Frankel, 2006: 1). Rose himself noted that his findings seemed unbelievably large, and academics in the field immediately called Rose's findings into question (Rose, 2000: 24). To date, over 2,161 papers have cited the research.[1]

Rose tested the effect of common currencies on trade by creating an expansive dataset covering 33,903 bilateral trade observations during five different years (1970, 1975, 1980, 1985, and 1990). This data included all 186 countries and dependencies in existence at the time. Using the dataset, Rose found 330 country pair combinations both actively involved in trade and sharing a common currency.

Rose used the gravity model to isolate the common currency effect. The Gravity Model states that trade is largely dependent on the relative size, distance, and income of two countries. Rose's model is as follows:

$$\ln (RV_{od}) = \beta_1 \ln(RY_o RY_d) + \beta_2 \ln(Distance_{od}) + \beta_3 (CU_{od}) + controls$$

[1] According to Google Scholar

where RV is the real value of bilateral trade, the RY's are real GDPs of the origin nation (o) and the destination nation (d), and CU is a dummy variable equal to one when nations o and d share a common currency (Baldwin, 2006). Controls represents the additional explanatory variables used in Rose (2000) including exchange rate volatility, output, output per capita, distance, contiguity, language, free trade areas, dependencies, shared colonizers, colonial relationship, and number of observations. Using this model, Rose found a 300 percent increase in trade for countries sharing the same currency. Rose's findings still hold up given these additional inputs.

Previous literature on currency unions tends to identify common currency as an extreme case of exchange rate stability. Rose (2000) was a significant contribution to the literature because it argued that the trade effect of common currency formation were exponentially greater than those of stable exchange rates. Rose (2000) argued that the common currency itself encouraged trade in ways that stable exchange rates and even fixed exchange rates could not.

Pruning the Rose Effect

Rose's seemingly overblown estimate of the common currency union effect on trade led to an academic hunt to ground his astronomic findings. Three criticisms of Rose's work emerge in subsequent studies: (1) endogeneity, (2) inadequacy of Rose's model, and (3) the omission of explanatory variables (Baldwin, 2006).

Endogenous Common Currency

Since Andrew Rose published his findings, one of the main criticisms is the possibility that the trade growth associated with common currency formation is more related to the effects of the extensive economic integration inherent to common

currency implementation. This criticism argues that the creation of common currency areas is not a random process, but a deliberate policy that comes with radical monetary reforms and increased political and economic integration between two trading partners—all of which could generate international trade growth. Some argue that this endogeneity nullifies the Rose effect as it is impossible to separate the growth in trade caused by the aforementioned reforms and the trade growth resulting from the common currency effect.

Praussello (2012) also argues that there is no feasible way to separate the increased trade that is associated with the economic integration which comes with currency union creation from the increased trade associated with the common currency itself (Praussello, 2012). Persson (2001) makes a similar argument when describing the difficulty of manipulating the currency union effect. Fidrmuc and Fidrmuc argue that it is too difficult to isolate the currency union effect after attempting to explain trade patterns in "demised" federations of Eastern Europe (2003).

Mongelli, Dorrucci, and Agur (2005) holds to the assumption that common currency areas are nonrandom, but the authors try to identify motivations behind the creation of common currency areas in order to better isolate the effect of common currency formation on trade. Mongelli, Dorruci, and Agur (2005) runs causality tests and finds evidence that the growth of trade within the European Union is more linked to the institutional reforms than the common currency effect (2005).

Nitsch and Berger (2008) as well as Tenreyro (2007) attempt to account for the possibility of endogeneity in their studies of the currency union effect and find a marginal effect on trade at most. Nitsch and Berger (2008), which looked at the effect

of the Eurozone, accounted for endogeneity by including an estimation of the increase in trade growth caused by political and economic integration. The authors found that this canceled out the currency union effect. Tenreyro (2007) includes a measure for the probability of a country entering a currency union. The author believes that this measure should account for endogeneity and finds that the variable greatly reduces the currency union effect.

The most recent criticism of the Rose effect comes from Campbell (2013). In his paper, Campbell points out the significant lack of attention paid to historical factors in Rose's research. Campbell goes through a large number of the observations in the Rose dataset and points out that many of the observed nations were undergoing significant crises during the time of common currency adoption. Campbell also points out the significance of the missing data in Rose's research and many subsequent studies arguing that by accounting for these historical events, endogeneity is eliminated and the currency union effect nullified.

While many researchers, including some of the previously mentioned authors, believe that the currency union effect on trade is canceled out by accounting for other economic integration efforts taking place on the periphery, most researchers have accounted for the endogenous factors of common currency areas and still found a strong, positive currency union effect on trade.

Tenreyro (2001) was among the first to account for the strong possibility that joining a currency union relied on endogenous selection and still observe a strong, positive currency union effect. She argues, however, that the endogeneity can be isolated by including a self-selectivity variable. With this variable, Tenreyro finds that by including a variable for endogenous selection, the effect of common currency

on trade generally falls to 100 percent when looking at the Eurozone. Frankel (2008) also uses Eurozone data and finds that the currency union effect remains positive when accounting for endogeneity. This finding is significant as it shows that the currency union effect can still be positive and significant when accounting for endogeneity. Nonetheless, endogeneity must be taken seriously in interpreting the results of any study in the field.

Problems with the Model

Other criticisms of the Rose effect go beyond the lack of variables in the model and raise issue with the model itself. One relevant issue with Rose's dataset is that the timeline only covers from 1970 to 1990. This data is mostly made up of developing economies leaving currency unions, which may bias the results. In an attempt to account for this issue, Micco, Stein, and Ordonez create their own dataset comprising of 22 industrialized country observations over the second half of the 20th Century (2003). Similarly, most research updates the dataset to the time of publication.

A major shift in methodology in the more recent literature appears in the change from the use of cross-sectional and time-series analysis to panel data analysis. Previous efforts to study the common currency area effect implement a country-dummy variable in an attempt to account for change over time and issues specific to each country. This variable, however, can easily create a positive bias in the results, leading to an overestimation of the effect of the common currency area on trade (Baldwin, 2006). For this reason, the most recent research tends to use panel analysis.

One attempt to reconcile the differing models used throughout the history of the literature is the meta-analysis of Rose and Stanley (2005). In this work, the

authors aggregate the findings in the field before 2005 and estimate that the currency union effect increases trade by 30 to 90 percent. This work makes no attempt to criticize the previous research on the topic; instead, it identifies the average findings for the currency union effect on trade.

An important note is that there will likely be errors in all trade data due to flawed collection techniques. Baldwin (2005) argues that some possible areas of fault in international trade data include (1) inaccurate reporting of VAT statistics, (2) fraud in rules of origin reporting, (3) relative depreciation of the Euro and the dollar, and (4) other unknown errors (Baldwin, 2006).

Missing Variables

Many authors have taken on the challenge of improving Rose's estimations. Since 2000, their efforts have uncovered explanatory variables that tend to reduce the currency union effect. The following gives a brief summary of some of the most notable additions to Rose's original variables, concluding with the Glick and Rose (2001) dataset used in this study:

1. Rose and van Wincoop (2001): The authors argue that there is a need to consider the relative prices of exports and production in the two countries engaged in trade. They find that without this term, the Rose effect is greatly overestimated.

2. Micco, Stein, and Ordonez (2003): These authors use their own dataset and include a lag variable. This lag accounts for the time it usually takes to remove barriers to trade after common currency area formation (particularly relevant to the European Union). The authors do not find that common currency leads to trade

diversions for countries outside of the common currency area. Berger and Nitsch (2005) and Mongelli, Dorruci, and Agar (2005) both support this "lag" variable.

3. Eicher and Henn (2011) explain the need for a geography-based remoteness variable that was originally included in Rose (2000). Second, the paper shows that there is also a need for country-fixed effects similar to what was used in Rose and van Wincoop (2001). Eicher and Henn (2011) argues that the correlation between the two included variables carries significance and must be taken into consideration.

4. Baldwin and Taglioni (2006): The authors show that the currency union effect differs by the currency used. By instituting a dummy variable to categorize the currency used, they find variations across currencies.

5. Glick and Rose (2001): The authors update Rose's original gravity model with a more current understanding of the theory behind the currency union effect by augmenting the dataset with more explanatory variables and correcting mistakes made in the original Rose dataset. These additions help account for endogeneity issues. The dataset has been made widely available and is used in much of the literature. For these reasons and those discussed later in the paper, the present research uses the Glick and Rose dataset in combination with data on financial development.

The role of financial development

The second tier of literature pertinent to this paper addresses the role of financial development in the effect of common currency on trade. While no work to date specifically tests this relationship, there is a significant amount of applicable research concerning the role of financial development in the effect of exchange rate volatility on trade. Previous literature holds that exchange rate volatility is more

damaging to trade in economies with less financial development. The present research applies this assumption to the currency union effect on trade by arguing that financial development allows firms to hedge exchange rate risk, eliminate hysteresis, and overcome the large fixed-costs of international commerce; thus, countries with less financial development may work to eliminate these barriers to trade by undergoing common currency formation. The following addresses this literature and its relevance to the central hypothesis of this paper: the currency union effect on trade varies across levels of financial development.

High levels of financial development offer firms the ability to trade more by channeling savings to the private sector. Well-developed financial systems will allow firms to capitalize on economies of scale and take advantage of opportunities in the international market leading to increases in trade. The most notable work on the financial development-trade nexus comes from Kletzer and Bardhan (1987). The authors provide a theory for the impact of financial development on international trade and show that high levels of financial development give a comparative advantage to firms that require external financing.

Beck (2002) adds to the theory proposed in Kletzer and Bardhan (1987) by conducting a study of manufacturing firms in 60 countries over 30 years. By measuring how much firms export relative to the levels of financial development in their respective countries, Beck (2002) is able to show that firms operating in countries with higher financial development trade significantly more. This work adds to the existing literature on financial development's effect on trade, which shows that financial constraints tend to restrict export product scope, the quantity of trading partners, and the value of trade (Greenaway and Kneller, 2007; Muûls, 2008; Manova, 2013).

Furthering this research, Manova (2013) uses a survey of over 100 countries and 27 industrial sectors to further identify the implications of financial development on trade flows by explaining how "financial frictions" affect trade. She finds three ways through which financial development affects trade: (1) the selection of heterogeneous firms into domestic production, (2) the selection of domestic manufacturers in exporting, and (3) the level of firm exports (Manova, 2013). Becker (2012) further backs the theory presented in Manova (2013) with an industry level study of the financial development-trade nexus and finds that manufacturing companies trade considerably more when aided by well-developed financial institutions.

An understanding of financial development's effect on international trade helps provide a theory for the role of financial development in the currency union effect. Much of the literature addressing the role of financial development on the effectiveness of currency unions must be taken from the study of financial development's role in minimizing the risks associated with exchange rate volatility. Clark (1973) offers a theory of exchange rate volatility and trade that is dependent on financial development. Clark (1973) theorizes that firms trade less in countries with high exchange rate volatility; however, Clark (1973) argues that this effect can be offset by a well-developed financial system (1973). Hooper and Kohlhagen (1983) also show that firms trade less in the presence of high exchange rate volatility. Hooper and Kohlhagen (1983) add to the findings of Clark (1973) by theorizing that firms operating in well-developed financial systems have the ability to hedge risk through future market transactions and can therefore avoid the negative effects of exchange rate volatility (1983).

Ethier (1973) further relaxes Clark's theory and describes a situation in which firms operate with well-developed forward markets. This allows firms to eliminate the risk associated with volatile exchange rates and strengthen trade relationships. Ethier (1973) argues that through well-developed financial systems—manifest in effective forward markets—firms can alleviate the negative effects of exchange rate volatility; consequently, the currency union effect should be minimized for firms operating in highly-developed financial systems.

Aghion et al. (2009) adds to the understanding of financial development's role in international trade and economic growth. The authors find that low levels of financial development tend to exacerbate the negative effects of credit market constraints. This can lead to firm profit volatility thereby lowering investment and productivity. The opposite is true of firms operating with high financial development: access to credit and a stable financial system leads to stable profit, more investment, and higher productivity. In a panel analysis of firms in over 70 developed and emerging economies, Benhima (2012) backs the results of Aghion et al. (2009). Both Benhima (2012) and Aghion (2009) endorse the establishment of exchange rate regimes under specific conditions of financial development, supporting the theory that the currency union effect could differ across levels of financial development.

A strong contribution to the literature comes from Chit and Judge (2011) who take firm-level data from East Asian countries between 1990 and 2006 to study the effect of financial development on exchange rate volatility. They find that even when a firm faces imperfect hedging opportunities, it can protect itself from exchange rate volatility through a well-developed financial system. The authors argue that firms will use a more stable foreign currency when their financial system permits it. In addition, high levels of financial development allows firms to minimize risks

associated with exchange rate volatility and allows firms to access more finance opportunities to further reduce risk (Chit and Judge, 2011).

Another theory of the role of financial development in the trade-exchange rate nexus is hysteresis. This theory was first developed by Krugman (1986). The theory holds that firms trade less in the presence of high exchange rate volatility to avoid the costs associated with instability. The negative effects of exchange rate volatility are amplified in this theory as firms are shown to make decisions based on a currency's long-run reputation. This is to say that firms are able to hedge short-term exchange rate risks with adequate financial development; however, firms will choose to leave or avoid entering markets with long-term exchange rate volatility (Krugman, 1986).

Krugman's model is relevant to the study of financial development as it allows for firms to hedge exchange rate risks; consequently, firms operating in markets with high-financial development have the ability to maintain normal trade despite exchange rate volatility. Héricourt and Pocet (2012) empirically back the theory of hysteresis using data from 100,000 Chinese exporters between 2000 and 2006. The authors find that firms in areas with low-financial development are much less likely to enter markets with high exchange rate volatility because they are unable to hedge the exchange rate risks associated with the foreign market (Héricourt and Pocet, 2012).

In addition to the theories of hedging risk and avoiding hysteresis, the theory of fixed cost financing is also relevant to the study of financial development's effect of the trade-exchange rate nexus. This theory, used in Becker, Chen, and Greenberg (2012), holds that there are considerable fixed costs involved with international trade; therefore, firms with access to credit through high levels of domestic, financial development are more likely to trade internationally. Similarly, these firms are likely

to be highly mobile as they can afford to enter and exit markets in reaction to changing market conditions. Becker, Chen, and Greenberg (2012) argue that firms without access to well-developed financial systems are less mobile. When these firms are able to trade and conduct business in a foreign market, they are less able to leave this market in response to changing circumstances. In a study of 170 countries between 1963 and 2000, Becker, Chen, and Greenberg show that trade between firms in countries with low levels of financial development are more negatively affected by exchange rate volatility than firms with access to highly-developed financial institutions (2012).

Greenaway and Kneller (2007) back this theory and provide a model that incorporates sunk costs. Greenaway and Kneller (2007) shows that exchange rate volatility will lead to higher sunk costs for firms as resources are diverted to undergoing international exchanges. Firms with access to high-levels of financial development will be able to continue to operate abroad by financing changes to international market strategy. Firms operating in areas with low levels of financial development, however, are less mobile and cannot fund changes to their strategy. The additional sunk costs associated with the changing exchange rate may cause these firms to drop out of the foreign market altogether. The theory proposed in Aghion et al. (2009) backs the sunk cost theory proposed in Greenaway and Keller (2007) and Becker, Chen, and Greenberg (2012).

The theories of hedging exchange rate risk, hysteresis, and fixed cost financing relax the assumptions of the model first proposed in Clark (1973) by giving firms more mobility and resources to counter exchange rate volatility. These extensions to the theory of financial development and its role in international trade provide a basis for much recent research and motivate the hypothesis of this paper. The most recent

study on the trade-exchange rate nexus and the role of financial development comes from Kliatskova (2013). Kliatskova makes an important contribution to the literature by studying 1,560 country pairs between 1996 and 2010 to understand the importance of financial development in the effect of exchange rate volatility on trade. She finds that countries with high financial development can nearly eliminate the effects of long-term exchange rate volatility while countries with less financial development are more negatively affected by long-term exchange rate volatility.

The aforementioned research points to the importance of financial development in reducing the negative effects of exchange rate volatility. The theories of hedging exchange rate risk, hysteresis, and fixed costs financing all help to strengthen the understanding of the role of financial development in the currency union effect. To date, however, no research has studied the role of financial development in respect to the currency union effect. The purpose of the subsequent research is to test the hypothesis that firms operating in markets with low levels of financial development will trade more as the result of currency union formation compared to firms operating with high-levels of financial development. This theory is motivated by the assumption that currency unions should increase trade by more in less-financially developed economies as common currency formation gives firms in economies with low financial development the ability to hedge risk, avoid hysteresis, and minimize the costs of operating abroad.

Methodology

The hypothesis that the currency union effect on trade depends on levels of financial development is tested by combining trade and currency union data from Glick and Rose (2001) and financial development data created by Beck, Loayza, and Levine (1999). This is the first time that these datasets have been considered together. Like Glick and Rose (2001), this paper will use the gravity model as a baseline model for analysis. To this model, the research will add financial development indicators to test the hypothesis.

Basic Model Specification

Most analyses of the currency union effect on trade use a variation of the gravity model. This model holds that trade levels are determined by the relative size of the trading partner's economies and the geographical distance between them. Many researchers add to the gravity model for further accuracy by including measures such as common language, trade agreement status, and colonial relationships (Rose, 2000; Tenreyro, 2007). This study will use the model first developed in Glick and Rose (2001):

ltrade= *f* (landl, island, border, comlang, comcol, comctry, colony, curcol, cu, regional, lareap, ldist, lrgdp, lrgdppc)

where *landl* determines whether or not a country is landlocked, *island* identifies island nations, *border* describes whether or not trading partners share a border, *comlang* identifies countries that share a common language, *comctry* determines if the trading partners are located within the same country, *colony* recognizes trading partners that were once in a colony-colonizer relationship, *curcol* identifies current colonies, *cu*

identifies countries currently involved in a currency union, *regional* determines whether the trading partners are involved in a trade agreement, *lareap* is the log of the product of the area of trading partners, *ldist* is the log of the distance between the two countries, *lrgdp* is the log of the product of the two countries' real GDP, and *lrgdppc* is the log of the product of the two countries' GDP per capita.

To the Glick and Rose Model, this study adds the indicators of financial development developed by Beck, Loayza, and Levine (1999): the ratio of commercial bank assets to total assets, the quantity of private credit relative to GDP, and the quantity of liquid liabilities relative to GDP. In order to account for the role that these measures play in the currency union effect on trade, interaction variables with the currency union dummy are included for each measure of financial development. This results in a model that should capture the effect of financial development on the currency union effect:

$$\ln(X_{ijt}) = \beta_0 + \beta_1 landlt + \beta_2 island + \beta_3 border + \beta_4 comlang + \beta_5 comcol + \beta_6 comctry + \beta_7 colony + \beta_8 curcol + \beta_9 CU + \beta_{10} regional + \beta_{11} lareap + \beta_{12} ldist + \beta_{13} lrgdp + \beta_{14} lrgdppc + \beta_{15} financial\ development\ indicator + \beta_{16} CU_{ijt} * financial\ development + \varepsilon_{ijt}$$

Where i and j are countries and t is time. The variables, as described in Glick and Rose (2001), are defined as:

Xijt represents the average value of real bilateral trade between countries i and j at time t. Y is real GDP. Pop is population. D is the distance between i and j. Lang is a binary variable which is unity if countries i and j have a common language. Cont is a binary variable which is unity if countries i and j share a

land border. FTA is a binary variable which is unity if countries i and j belong to the same regional trade agreement. Landl is the number of landlocked countries in the country-pair (0, 1, or 2). Island is the number of island nations in the pair (0, 1, or 2). Area is the land mass of the country. ComCol is a binary variable which is unity if countries i and j were ever colonies after 1945 with the same colonizer. CurCol is a binary variable which is unity if countries i and j are colonies at time t. Colony is a binary variable which is unity if country i ever colonized j or vice versa. ComNat is a binary variable which is unity if countries i and j remained part of the same nation during the sample (e.g., France and Guadeloupe, or the UK and Bermuda). CU is a binary variable which is unity if countries i and j use the same currency at time t. ε_{ij} represents the myriad other influences on bilateral exports, assumed to be well behaved (Glick and Rose, 2001).

The coefficient β_{15} denotes the effect of the product of each specific financial development indicator for each regression. β_{16} acts as the coefficient for the interaction term between currency union and the specific measure of financial development. This study will carry out three independent regressions to study the effect of each individual financial development observation.

The impact of each measure of financial development on trade will be measured using the following equation:

Net currency union effect= $\beta_9 CU + \beta_{16} CU$*(mean financial development)

where β_9 captures the trade impact of two countries using the same currency and β_{16} predicts the change in the log of bilateral trade for a unit change in financial development for two trade partners using a common currency. Together, β_9 and β_{16} captures the net effect of currency union formation, accounting for levels of financial

development. These results are limited in that they focus on the cumulative level of financial development between two trade partners.

For policy purposes, it is useful to know the effect of specific levels of financial development. To address this concern, the paper categorizes countries with high levels of financial development and countries with low levels of financial development. The paper then runs regressions using dummy variables for differing levels of financial development: FD_LL—unity when both trading partners have low levels of financial development, FD_HL—unity when one trading partner with high financial development trades with a nation of low financial development, and FD_HH—unity when both trading partners have high levels of financial development.

Data

The role of financial development on the currency union effect is studied using over 117,000 observations of bilateral trade and levels of financial development between 1960 and 1997. As is common in the literature, the observations are formatted for panel-data analysis using bilateral trade data obtained from the IMF Direction of Trade Statistics and financial development indicators taken from the World Bank Development Indicators database.[2]

The Gravity Model of Trade

The analysis is based on the gravity model in which trade flows are a function of both the incomes of the trading partners and the distance between them. As previously addressed, this paper uses the Glick and Rose (2001) data to replicate the gravity model.

[2] Made available at http://faculty.haas.berkeley.edu/arose/RecRes.htm#CUTrade

Measuring Financial Development

To measure levels of financial development, this paper uses the financial development indicators created by Beck, Loayza, and Levine (1999). These measures attempt to quantify the effectiveness, size, and structure of a country's bank-based financial sector. This research uses the three indicators developed by Beck, Loayza, and Levine (1999): the ratio of commercial bank assets to total financial assets, the quantity of available private credit relative to GDP, and the quantity of liquid liabilities relative to GDP. The authors explain that these measures improve on previous attempts to quantify financial development by "(i) more accurately deflating nominal measures of intermediary liabilities and assets, (ii) more comprehensively measuring the banking sector, and (iii) more carefully distinguishing who is conducting the intermediation and to where the funds are flowing" (King and Levine 2000, 261). These measures are commonly used in the literature and built on the work of King and Levine (1993).

The first measure of financial development is the ratio of commercial bank assets to all financial assets. The indicator is equal to the ratio of commercial bank assets divided by commercial bank assets plus central bank assets. While not an exact measure of the quality of financial systems in the market, the ratio of commercial bank assets to all financial assets gives an indication of the extent that commercial banks in an economy allocate savings relative to central banks. This is significant given that commercial banks will be more likely to allocate savings more efficiently than central banks through greater capacity to identify profitable investment, monitor managers, manage risk, and create more access to funds (King and Levine, 2000).

The quantity of private credit relative to GDP is a measure of the total value of credit given to the private sector by financial intermediaries divided by GDP. Private credit, like measures of commercial bank assets, is a useful measure of the quality of financial systems as it only measures the private credit available in an economy, which is generally thought to be more efficiently allocated than public credit. Beck, Loayza, and Levine (1999) see private credit measures as an improvement on previous measures of financial development because it provides a more accurate measure of the amount of financial services available in a market.

The quantity of liquid liabilities relative to GDP is a measure of the depth of a financial system. This indicator is equal to the liquid liabilities of the financial system ("currency plus demand and interest-bearing liabilities of banks and non-bank financial intermediaries") divided by GDP (King and Levine, 2000: 259). This is the most widely used indicator of the size of the financial system in a country (King and Levine 1994). This measure does not provide an indicator of the effectiveness of the financial system, but many find it indicative of financial development (Goldsmith, 1969; King and Levine, 1993; and McKinnon, 1973).

Together, the measures of financial development in Beck, Loayza, and Levine (1999) should provide a strong indication of the relative level of financial development in a given country. These measures of financial development, added to the Glick and Rose trade data, should provide evidence for testing the central hypothesis of this paper. The trade data comes from the IMF's Direction of Trade Statistics and is made available by Andrew Rose.[3] The financial development

[3] Available at <http://faculty.haas.berkeley.edu/arose/RecRes.htm#CUTrade>

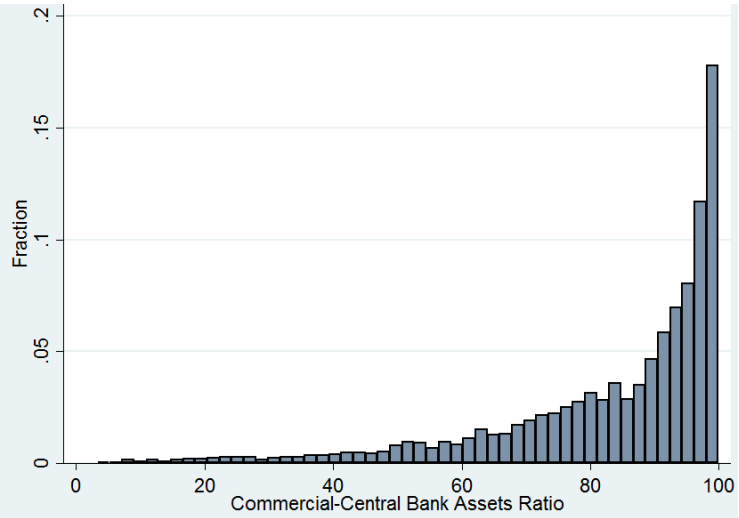
indicators are taken from the World Bank's Development Indicators via the ProQuest database.[4]

The wide distribution of levels of financial development across countries makes classifying the relative levels of financial development difficult. Similarly, it is difficult to give a definite level of financial development that can be called "high" or "low." Clearly, these classifications are not perfect, but following the guidelines set by Beck et al. (1999) and giving a wide enough separation between the countries considered to have high financial development and those considered to have low financial development, should make for useful classifications.

The paper uses the median as the midpoint and categorizes high ratios of commercial bank assets to be in the 70th percentile (over 96.12) of all observations. Nations in the bottom 30th percentile (below 79.57) are considered to have low levels of financial development. It is necessary to use the 30th and 70th percentile as opposed to a smaller difference such as the 40th and 60th percentiles because several nations have fluctuating ratios of commercial bank assets that move them from the 40th percentile to the 60th percentile and back within a short amount of time. There are no such fluctuations between observations in the 30th and 70th percentile. As a benchmark for comparison, it is worth noting that Beck et al. identifies the average level of commercial bank assets for developed nations to be 85 percent and for developing nations to be 50 percent (1999). Graph 1 presents the distribution of the ratio of commercial bank assets across all observations:

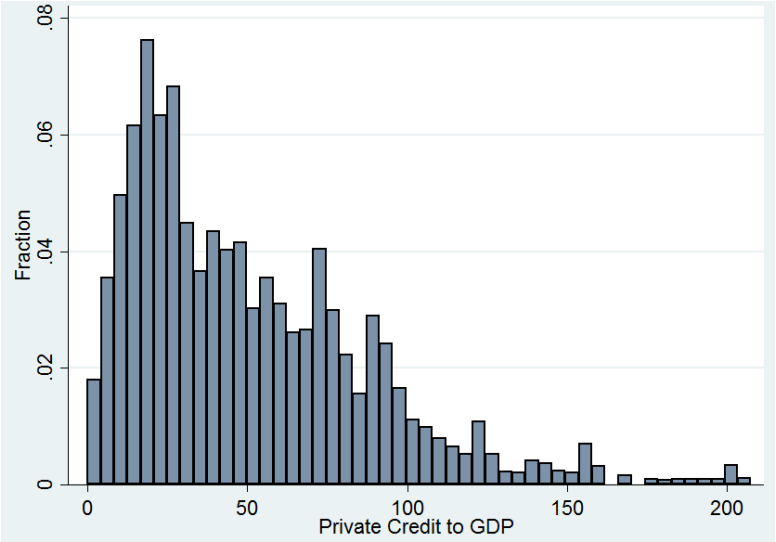
[4] Available at <http://0-data-planet.conquestsystems.com.umiss.lib.olemiss.edu/statistical/Main.jsp;jsessionid=6F4429D2D1CFE29BAA4CD67D864828BA?dataplanet=true>.

Graph 1 Commercial-Central Bank Assets Distribution



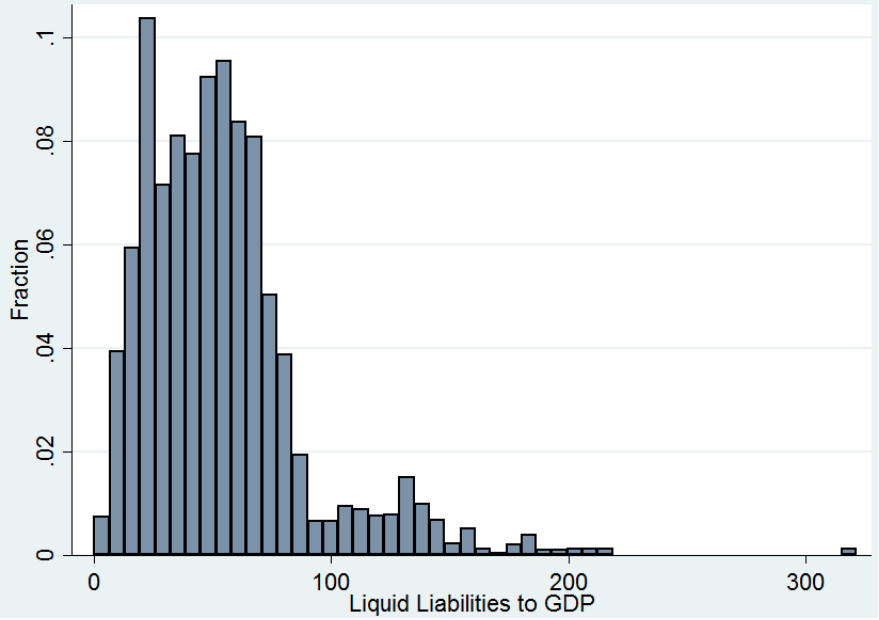
Low levels of private credit are assumed to be below 31.45 percent and high levels are assumed to be above 52.56 percent. These boundaries distinguish nations with low levels of financial development as those within the 40th percentile of private credit and nations with high levels of financial development to be within the 60th percentile. The median of private credit across all observations is 41.82 percent. The observations also closely resemble the average levels of private credit for developing nations (30 percent) and developed nations (60 percent) (Beck et al. 1999). Graph 2 gives the distribution of private credit:

Graph 2 Private Credit Distribution



Low levels of liquid liabilities are considered to be below 41.66 percent of GDP while high levels of liquid liabilities are considered to be above 56.72 percent of GDP. These boundaries represent the 40th percentile and 60th percentile of all observations, respectively. It is helpful to consider that Beck et al. identifies levels of liquid liabilities for developing countries to be 30 percent and 60 percent for developed countries (1999).

Graph 3 Liquid Liabilities Distribution



Empirical Results

This study first uses pooled OLS. Assuming that bilateral trade relationships have unique characteristics, this paper will then use a fixed effects approach to account for unobserved, time-invariant variables that may be correlated with the observed explanatory variables. Next, a time-fixed effects approach is used to account for variation across the timespan of the data (1960-1997). Last, the paper accounts for both time and entity effects using a combined time-fixed effect and entity-fixed effect approach. To further test the hypothesis that low levels of financial development make for more effective currency unions, the estimated currency union effect for the top 10 most financially developed economies for each indicator are compared to the 10 least financially developed economies for each indicator.

Pooled OLS

Following the original analysis of Glick and Rose (2001), this paper first uses pooled OLS to estimate the currency union effect on trade. To this model, the aforementioned financial development indicators are added.[5]

Importantly, the regression very closely replicates the original results from the Glick and Rose analysis. This paper finds a coefficient of 1.34 on the currency union dummy variable meaning that countries with a currency union are estimated to trade 3.8 times (380 percent) more with one another ($e^{1.34}$= 3.81) compared to countries

[5] In this and all subsequent tables, the ratio of commercial bank assets to total asset is denoted "CCB," the quantity of private credit relative to GDP is denoted "PC," and the quantity of liquid liabilities relative to GDP is denoted "LL."

using their national currencies.[6] The original Glick and Rose paper finds a coefficient of 1.3 (interpreted as an increase of 370 percent in trade).

Commercial Bank Assets

Pooled OLS results accounting for commercial bank assets are given in Table 1.[7]

Table 1	*Observations*			*CU*	*Interaction*			*Net*
CCB Data	105,119			1.43*** (.05) [27.7]	----------			1.43
CCB12	105,119			.91*** (.16) [5.67]	.00003 (.00002) [1.59]			----------
CCB_HH	130			1.37*** (.05) [25.91]	.66*** (.19) [3.41]			2.03 (.18) [10.78]
CCB_HL	40			1.45*** (.05) [28.01]	-.09 (.33) [-0.28]			----------
CCB_LL	497			1.32*** (.05) [22.55]	.08 (.10) [0.82]			----------
All Interactions	*HH* 130	*HL* 40	*LL* 497	1.29*** (.06) [20.92]	*HH* .52*** (.19) [2.69]	*HL* -.11 (.33) [-.34]	*LL* .11 (.11) [.319]	----------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The interaction term of currency union effect and commercial bank assets is insignificant. The currency union effect is found to increase trade by 344 percent

[6] Using 219,558 observations with 99% confidence

[7] In this table, and subsequent tables, commercial to central bank assets ratio is abbreviated as **CCB**. The cumulative ratio for both trade partners in an observation is abbreviated as **CCB12**. **CCB_HH** represents the interaction for currency union and trade between countries with high commercial bank asset ratios. **CCB_HL** represents the interaction dummy for currency union and trade between country pairs where one partner has low levels of commercial bank assets and the other has high levels of commercial bank assets. **CCB_LL** signifies the interaction dummy for currency union and trade between countries with low levels of commercial bank assets. The currency union effect is represented by **CU**. The interaction estimate is given under **interaction**, and the net effect for both the currency union effect and the interaction estimate is given under **net.**

($e^{2.03} - e^{1.43} = 3.44$) for trade between two partners with high levels of commercial bank assets. The interaction for trade between one economy with high financial development and one with low financial development is insignificant. The interaction for two economies with low financial development is also insignificant.

Next, a comparison is made to estimate the currency union effect of the 10 economies with the highest levels of commercial bank assets against the 10 economies with the lowest levels of commercial bank assets. Under the pooled OLS model, the currency union effect for the 10 nations with the highest levels of commercial bank assets is 40 percent larger than for the 10 nations with lowest levels of financial development. This contradicts the original hypothesis; however, this paper holds that the pooled OLS model omits significant time and entity variables. In addition, the wide standard error makes these results inconclusive. The estimates are found in Table 2:[8]

Table 2 CCB, Pooled OLS

Top 10 CCB			**Bottom 10 CCB**		
Country	**Avg**	**CU Effect**	**Country**	**Avg**	**Pooled OLS**
Austria	7525.76	1.13	Afghanistan	887.11	0.93
Bahamas	7382.45	1.13	Angola	2584.23	0.98
France	7417.97	1.13	Bolivia	3607.23	1.01
Germany	7459.49	1.13	Burma	2624.33	0.98
Ireland	7208.96	1.12	Cape Verde	2307.76	0.97
Kuwait	7569.49	1.13	Haiti	2391.40	0.98
Netherlands	7486.10	1.13	Liberia	2126.33	0.97
Thailand	6476.31	1.10	Nicaragua	4808.68	1.05
Singapore	7962.14	1.14	Sierre Leone	3093.03	1.00
UAE	6873.76	1.11	Uganda	2421.92	0.98

[8] The Table is divided into parts: (1) the 10 countries with the highest levels of CCB and (2) the 10 countries with the lowest levels of CCB. In Columns 2 and 5, the average cumulative level of CCB is given for the country and its trading partners. In Columns 3 and 6, the net currency union effect is calculated based on the averages in columns 2 and 5. The standard error is reported in parentheses. This design is used in all subsequent tables by replacing CCB with PC for Private Credit and LL for Liquid Liabilities.

All	7336.24	1.13 (.29)	All	2685.20	0.99 (.10)

Private Credit

Table 3	*Observations*			*CU*	*Interaction*			*Net*
PC Data	117,897			1.77*** (.06) [29.53]	----------			1.77
PC12	117,897			1.81*** (.07) [25.43]	-.0001** (.00004) [-2.65]			1.62 (.06) [23.44]
PC_HH	42			1.787*** (.061) [29.27]	-.630 (.330) [-1.91]			----------
PC_HL	51			1.815*** (.061) [29.61]	-.911** (.292) [-3.12]			.904 (.28) [3.16]
PC_LL	868			1.789*** (.097) [18.39]	-.046 (.119) [-0.39]			----------
All Interactions	*HH* 42	*HL* 51	*LL* 868	2.03*** (.10) [18.84]	*HH* -1.06** (.33) [-3.15]	*HL* -1.10*** (.304) [-3.36]	*LL* -.329** (.127) [-2.58]	-.468 (.48) [-0.97]

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The results for the Pooled OLS model accounting for private credit are given in Table 3.[9] The model holds that the cumulative effect of private credit on the currency union effect to be statistically significant, lowering the currency union effect by 81 percent. This drop would be greater for trade partners with higher levels of cumulative private credit.

[9] In this table, and subsequent tables, levels of private credit is abbreviated as **PC**. The cumulative level of private credit for both trade partners in an observation is abbreviated as **PC12**. **PC_HH** represents the interaction for currency union and trade between countries with high levels of private credit. **PC_HL** represents the interaction dummy for currency union and trade between country pairs where one partner has low levels of private credit and the other has high levels of private credit. **PC_LL** signifies the interaction dummy for currency union and trade between countries with low levels of private credit. The currency union effect is represented by **CU**. The interaction estimate is given under **interaction**, and the net effect for both the currency union effect and the interaction estimate is given under **net.**

Including dummy variables for the levels of private credit has significance for trade between one economy with high financial development and one economy with low financial development. In this instance, the currency union effect falls by 340 percent. The other dummy interactions are insignificant under the pooled OLS model.

A comparison of the estimates for the currency union effect on the 10 countries with the highest private credit against the 10 countries with the lowest levels of private credit under pooled OLS is given in Table 4. Under the pooled OLS model, the currency union effect is predicted to be 137 percent weaker for countries with higher levels of private credit. While this evidence supports the original hypothesis, it remains inconclusive because of issues with the pooled OLS model discussed later in this paper.

Table 4 PC, Pooled OLS

Top 10 PC			**Bottom 10 PC**		
Country	**Avg**	**Pooled OLS**	**Country**	**Avg**	**Pooled OLS**
Japan	4103.99	1.39	Armenia	100.69	1.79
Cyprus	2666.04	1.54	DRC	15.46	1.80
Switzerland	3678.27	1.44	Tanzania	135.15	1.79
Hong Kong	3245.09	1.48	Azerbaijan	48.88	1.80
Thailand	1324.68	1.67	Ukraine	34.17	1.80
USA	3430.31	1.46	Uganda	91.00	1.80
Sweden	2587.33	1.55	Angola	51.36	1.80
United Kingdom	3992.91	1.41	Ghana	85.48	1.80
South Africa	2077.29	1.60	Syria	215.14	1.78
Germany	3530.04	1.45	Haiti	360.03	1.77
All	3063.59	1.53 (.24)	All	113.74	1.79 (.01)

Liquid Liabilities

Table 5	*Observations*			*CU*	*Interaction*			*Net*
LL Data	118,381			1.80*** (.06) [29.95]	----------			1.80
LL12	118,381			1.85*** (.07) [24.66]	-.000054 (.00004) [-1.28]			----------
LL_HH	85			1.83*** (.061) [29.62]	-.425 (.233) [-1.82]			----------
LL_HL	96			1.876*** (.062) [29.89]	-.788*** (.216) [-3.65]			1.088 (.20) [5.25]
LL_LL	971			1.548*** (.112) [13.76]	.401*** (.130) [3.07]			1.949 (.06) [27.90]
All Interactions	*HH* 84	*HL* 96	*LL* 971	1.921*** (.160) [11.99]	*HH* -.634* (.271) [-2.34]	*HL* -.819** (.261) [-3.13]	*LL* .022 (.17) [0.13]	----------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The pooled OLS estimate of the currency union effect on trade accounting for levels of liquid liabilities is given in Table 5.[10] The impact of the cumulative level of liquid liabilities on the currency union effect under the pooled OLS model is not statistically significant. Creating a dummy variable for trade between two countries where one trade partner has a high level of liquid liabilities and the other has a low level of liquid liabilities lowers the currency union effect by as much as 308 percent.

[10] In this table, and subsequent tables, levels of liquid liabilities is abbreviated as **LL**. The cumulative level of liquid liabilities for both trade partners in an observation is abbreviated as **LL12**. **LL_HH** represents the interaction for currency union and trade between countries with high levels of liquid liabilities. **LL_HL** represents the interaction dummy for currency union and trade between country pairs where one partner has low levels of liquid liabilities and the other has high levels of liquid liabilities. **LL_LL** signifies the interaction dummy for currency union and trade between countries with low levels of liquid liabilities. The currency union effect is represented by **CU**. The interaction estimate is given under **interaction**, and the net effect for both the currency union effect and the interaction estimate is given under **net.**

Including a dummy variable that accounts for trade between countries with low levels of liquid liabilities increases the currency union effect by 112 percent.

The estimate for the currency union effect on the 10 nations with the most liquid liabilities is compared to the estimate for the currency union effect on the 10 nations with the least liquid liabilities. The pooled OLS model predicts a stronger currency union effect for countries with lower levels of liquid liabilities by 107 percent. These finding supports the original hypothesis, but should be seen as inconclusive given the large standard error. The results are given in Table 6:

Table 6 LL, Pooled OLS

Top 10 LL			**Bottom 10 LL**		
Country	**Avg**	**Pooled OLS**	**Country**	**Avg**	**Pooled OLS**
Japan	5728.11	1.54	Armenia	202.73	1.83
Malta	5482.29	1.55	Guinnea-Bissau	271.46	1.83
Hong Kong	5380.13	1.55	Bhutan	261.79	1.83
Switzerland	4850.04	1.58	Gabon	486.81	1.82
Cyprus	3533.46	1.65	DRC	148.91	1.84
Malaysia	2942.73	1.69	El Salvador	313.24	1.83
Singapore	3152.43	1.67	Costa Rica	1253.67	1.78
Portugal	2946.63	1.69	Uganda	312.20	1.83
Austria	3032.06	1.68	Tanzania	512.41	1.82
United Kingdom	3361.93	1.66	Bolivia	968.24	1.79
All	4040.98	1.63 (.32)	All	473.15	1.82 (.03)

Fixed Effects

The pooled OLS model does not allow the explanatory variables to be correlated with time-invariant, unobserved country-pair characteristics that affect trade. To allow for this correlation, this paper employs a fixed-effects model. Table 7 gives the fixed effects results from estimating the currency union effect on trade when taking into account the level of financial development.

These findings suggest that joining a currency union will increase bilateral trade by 90 percent ($e^{.65}$= 1.9).[11] The estimate is statistically significant and offers baseline significance for comparing results based on differing levels of financial development.

Commercial Bank Assets

Table 7	*Observations*			*CU*	*Interaction*			*Net*
CCB Data	105,119			.328*** (.13) [3.78]	----------			.328
CCB12	105,119			.90*** (.13) [6.57]	-.0001*** (.00001) [-6.44]			.159 (.08) [1.83]
CCB_HH	130			.347*** (.08) [3.99]	-.49*** (.12) [-3.87]			-.149 (.14) [-1.00]
CCB_HL	40			.334*** (.086) [3.85]	-.307 (.21) [-1.42]			---------
CCB_LL	497			.187** (.09) [2.05]	.365*** (.07) [4.62]			.551 (.10) [5.52]
All Interactions	*HH* 130	*HL* 40	*LL* 497	.224*** (.09) [2.43]	*HH* -.45*** (.12) [-3.54]	*HL* -.27 (.21) [-1.26]	*LL* .32*** (.08) [4.02]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

[11] Using 219,558 observations with 99% confidence

First, the effect of commercial bank assets on the currency union effect is tested under the fixed effects model. Under this model, the cumulative ratio of commercial bank assets to all financial assets is significant and decreases the currency union effect by 21 percent at the mean. At higher levels of cumulative, commercial bank assets, a greater negative effect occurs. At lower levels of commercial bank assets, the currency union effect is greater.

Including a dummy variable for trade partners that both have high levels of commercial bank assets is also significant. The findings imply that when countries that both have high levels of financial development trade together, the currency union effect falls by 52 percent. This model also predicts that when both trading partners have low levels of financial development, the currency union effect is 34 percent stronger. The model finds no significance for trade between an economy with high financial development and an economy with low financial development.

The currency union effect estimates of the 10 economies with the highest levels of commercial bank assets are now compared to the 10 economies with the least commercial bank assets. Using the fixed effects model, the paper finds that the currency union effect is 73 percent stronger for countries with the least developed financial systems. This result supports the original hypothesis. The results are given in Table 8.

Table 8 CCB, Fixed Effects

Top 10 CCB			**Bottom 10 CCB**		
Country	**Avg**	**Fixed Effects**	**Country**	**Avg**	**Fixed Effects**
Austria	7525.76	0.14	Afghanistan	887.11	0.81
Bahamas	7382.45	0.16	Angola	2584.23	0.64
France	7417.97	0.15	Bolivia	3607.23	0.53
Germany	7459.49	0.15	Burma	2624.33	0.63
Ireland	7208.96	0.17	Cape Verde	2307.76	0.66
Kuwait	7569.49	0.14	Haiti	2391.40	0.66
Netherlands	7486.10	0.15	Liberia	2126.33	0.68
Thailand	6476.31	0.25	Nicaragua	4808.68	0.41
Singapore	7962.14	0.10	Sierre Leone	3093.03	0.59
UAE	6873.76	0.21	Uganda	2421.92	0.65
All	7336.24	0.16 (.14)	All	2685.20	0.63 (.05)

Private Credit

Table 9	*Observations*			*CU*	*Interaction*			*Net*
PC Data	117,897			.93*** (.12) [7.79]	----------			.93
PC12	117,897			.98*** (.12) [7.96] ***	-.0000944 (.00005) [-1.69]			---------
PC_HH	42			.934*** (.120) [7.78]	.014 (.219) [0.07]			---------
PC_HL	51			1.00*** (.124) [8.09]	-.532* (.251) [-2.12]			.473 (.24) [1.89]
PC_LL	868			.788*** (.143) [5.50]	.217 (.114) [1.91]			---------
All Interactions	*HH* 42	*HL* 51	*LL* 868	.871*** (.15) [5.78]	*HH* -.023 (.22) [-.11]	*HL* -.463 (.256) [-1.80]	*LL* .181 (.115) [1.57]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

Next, this paper tests the significance of the level of private credit access in a given country. The fixed effects model predicts an insignificant coefficient for the cumulative level of private credit. The currency union effect does not differ for

country pairs where both partners have high levels of private credit or for trade between countries that both have low levels of financial development. Where one trade partner has a high level of private credit and the other has a low level of private credit, the currency union effect falls by 94 percent; however, this estimate is only significant at the 5 percent level.

Table 10 presents the results of estimating the currency union effect for countries with the 10 highest levels of private credit against the estimate for the currency union effect for the 10 countries with the lowest levels of private credit. Similar to the original hypothesis, the results estimate that the currency union effect will be 62 percent stronger for the 10 nations with the least amount of private credit; however these results are inconclusive given the wide standard error.

Table 10 PC, Fixed Effects

Top 10 PC			**Bottom 10 PC**		
Country	**Avg**	**Fixed Effects**	**Country**	**Avg**	**Fixed Effects**
Japan	4103.99	0.59	Armenia	100.69	0.97
Cyprus	2666.04	0.72	DRC	15.46	0.97
Switzerland	3678.27	0.63	Tanzania	135.15	0.96
Hong Kong	3245.09	0.67	Azerbaijan	48.88	0.97
Thailand	1324.68	0.85	Ukraine	34.17	0.97
USA	3430.31	0.65	Uganda	91.00	0.97
Sweden	2587.33	0.73	Angola	51.36	0.97
United Kingdom	3992.91	0.60	Ghana	85.48	0.97
South Africa	2077.29	0.78	Syria	215.14	0.95
Germany	3530.04	0.64	Haiti	360.03	0.94
All	3063.59	0.69 (.84)	All	113.74	.96 (.03)

Liquid Liabilities

Table 11	*Observations*			*CU*	*Interaction*			*Net*
LL Data	118,381			.98*** (.12) [8.07]	----------			.98
LL12	118,381			1.02*** (.13) [7.52]	-.00003 (.000065) [-.55]			---------
LL_HH	85			.988*** (.122) [8.07]	-.122 (.177) [-0.69]			---------
LL_HL	96			1.07*** (.130) [8.25]	-.452* (.224) [-2.02]			.625 (.217) [2.88]
LL_LL	971			.774*** (.170) [4.53]	.309 (.167) [1.85]			---------
All Interactions	*HH* 85	*HL* 96	*LL* 971	.922*** (.195) [4.72]	*HH* -.171 (.179) [-.95]	*HL* -.378 (.243) [-1.55]	*LL* .204 (.179) [1.14]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The interaction term between liquid liabilities and the currency union dummy proves to be insignificant for the cumulative level of liquid liabilities. When the regression includes a dummy variable for trade between two partners with low levels of liquid liabilities or two countries with high levels of financial development, the interaction is also insignificant.

A significant interaction is found by including a dummy for trade between one partner with high levels of liquid liabilities and one partner with low levels of liquid liabilities. In this instance, the model estimates that the currency union effect falls by 80 percent; however, the results are only significant at the 5 percent level.

Table 12 presents a comparison between the estimates for the 10 nations with the highest levels of liquid liabilities and the 10 countries with the lowest levels of liquid liabilities. The findings hold that the currency union effect is expected to be 28

percent higher for the 10 economies with the lowest levels of liquid liabilities. These results should be considered inconclusive given the wide standard error.

Table 12 Liquid Liabilities, Fixed Effects

Top 10 LL			**Bottom 10 LL**		
Country	**Avg**	**Fixed Effects**	**Country**	**Avg**	**Fixed Effects**
Japan	5728.11	0.84	Armenia	202.73	1.01
Malta	5482.29	0.85	Guinnea-Bissau	271.46	1.01
Hong Kong	5380.13	0.85	Bhutan	261.79	1.01
Switzerland	4850.04	0.87	Gabon	486.81	1.00
Cyprus	3533.46	0.91	DRC	148.91	1.01
Malaysia	2942.73	0.93	El Salvador	313.24	1.01
Singapore	3152.43	0.92	Costa Rica	1253.67	0.98
Portugal	2946.63	0.93	Uganda	312.20	1.01
Austria	3032.06	0.92	Tanzania	512.41	1.00
United Kingdom	3361.93	0.91	Bolivia	968.24	0.99
All	4040.98	.89 (.52)	All	473.15	1.00 (.06)

Time-Fixed Effects

This model accounts for changes across time by creating dummy variables for each year in the dataset (1960-1995). This model will likely help to account for trends in trade flow across time caused by exogenous historical factors, such as those explained in Campbell (2012). The initial regression gives a coefficient of .58 for the currency union dummy, implying an increase in trade of 78 percent as a result of currency union formation (not accounting for financial development).[12]

Commercial Bank Assets

Table 13	*Observations*			*CU*	*Interaction*			*Net*
CCB Data	145,389			.37*** (.081) [4.61]	----------			.37
CCB12	145,389			.830*** (.134) [6.20]	-.0000959*** (.0000181) [-5.29]			.227 (.08) [2.81]
CCB_HH	130			.389*** (.081) [4.79]	-.417** (.127) [-3.27]			-.028 (.14) [-0.19]
CCB_HL	40			.386*** (.081) [4.76]	-.390 (.214) [-1.82]			---------
CCB_LL	497			.266** (.085) [3.10]	.28*** (.078) [3.59]			.546 (.09) [5.74]
All Interactions	*HH* 130	*HL* 40	*LL* 497	.304*** (.086) [3.51]	*HH* -.408*** (.128) [-3.16]	*HL* -.383 (.215) [-1.78]	*LL* .246*** (.079) [3.10]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The time-fixed effects model supports the general interpretation of the fixed-effects model. At the average cumulative ratio of commercial to central bank assets, the currency union effect is 20 percent lower. The currency union effect is further weakened at higher cumulative levels of commercial to central bank assets. When

[12] Using 219,558 observations with 99% confidence

both trade partners have high levels of commercial to central bank assets, the currency union effect falls by 47 percent and actually leads to a negative trade effect. When both nations have low levels of financial development, the currency union effect is 28 percent stronger.

Next, time-fixed estimates for the net currency union effect for the 10 countries with the highest commercial bank assets to the estimate of the currency union effect for the countries with the 10 highest levels of central bank assets are compared. The results, given in Table 14, support the original hypothesis. Under the time-fixed effects model, the 10 least financially developed economies have a currency union effect that is 63 percent stronger than for the 10 most financially developed economies.

Table 14 CCB, Time-Fixed Effects

Top 10 CCB			**Bottom 10 CCB**		
Country	**Avg**	**Time Effects**	**Country**	**Avg**	**Time Effects**
Austria	7525.76	0.10	Afghanistan	887.11	0.74
Bahamas	7382.45	0.12	Angola	2584.23	0.58
France	7417.97	0.11	Bolivia	3607.23	0.48
Germany	7459.49	0.11	Burma	2624.33	0.57
Ireland	7208.96	0.13	Cape Verde	2307.76	0.60
Kuwait	7569.49	0.10	Haiti	2391.40	0.60
Netherlands	7486.10	0.11	Liberia	2126.33	0.62
Thailand	6476.31	0.20	Nicaragua	4808.68	0.36
Singapore	7962.14	0.06	Sierre Leone	3093.03	0.53
UAE	6873.76	0.17	Uganda	2421.92	0.59
All	7336.24	0.12 (.313)	All	2685.20	0.57 (.09)

Private Credit

Table 15	*Observations*			*CU*	*Interaction*			*Net*
PC Data	114,473			.859*** (.107) [7.99]	----------			.859
PC12	114,473			.8965*** (.111) [8.04]	-.0000922 (.0000545) [-1.69]			.757 (.119) [6.34]
PC_HH	42			.855*** (.107) [7.96]	-.107 (.218) [-0.49]			---------
PC_HL	51			.921*** (.110) [8.33]	-.584* (.248) [-2.36]			.337 (.246) [1.37]
PC_LL	868			.678*** (.139) [5.11]	.255* (.112) [2.28]			.934 (.112) [8.30]
All Interactions	*HH* 42	*HL* *51*	*LL* *868*	.759*** (.139) [5.46]	*HH* -.154 (.219) [-0.71]	*HL* -.522* (.252) [-2.06]	*LL* .213 (.113) [1.88]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The cumulative level of private credit is insignificant under the time-fixed effects model. Trade between partners with low levels of private credit increases the currency union effect by 18 percent (only significant at the 5 percent level). Lastly, for trade between a nation with high levels of private credit and a nation with low levels of private credit, the currency union effect is 96 percent lower (only significant at the 5 percent level).

Table 16 gives a comparison between the currency union estimates for the 10 countries with the highest levels of private credit and the 10 countries with the lowest levels of private credit. The time-fixed effects model estimates that the currency

union effect will be 58 percent higher for countries with lower financial development; however, this result is inconclusive given the wide standard error.

Table 16 PC, Time-Fixed Effects

Top 10 PC			**Bottom 10 PC**		
Country	**Avg**	**Time Effects**	**Country**	**Avg**	**Time Effects**
Japan	4103.99	0.46	Armenia	100.69	0.84
Cyprus	2666.04	0.60	DRC	15.463	0.85
Switzerland	3678.27	0.50	Tanzania	135.15	0.84
Hong Kong	3245.09	0.54	Azerbaijan	48.88	0.85
Thailand	1324.68	0.73	Ukraine	34.17	0.85
USA	3430.31	0.52	Uganda	91.00	0.84
Sweden	2587.33	0.60	Angola	51.36	0.85
United Kingdom	3992.91	0.47	Ghana	85.48	0.84
South Africa	2077.29	0.65	Syria	215.14	0.83
Germany	3530.04	0.51	Haiti	360.03	0.82
All	3063.59	0.56 (.31)	All	113.74	0.84 (.01)

Liquid Liabilities

Table 17	*Observations*	*CU*	*Interaction*	*Net*
LL Data	115,020	.901*** (.109) [8.25]	----------	.901
LL12	115,020	.9128*** (.122) [7.46]	-.0000227 (.0000641) [-0.35]	---------
LL_HH	85	.902*** (.109) [8.26]	-.249 (.175) [-1.42]	---------
LL_HL	96	.972*** (.115) [8.44]	-.433* (.219) [-1.97]	.539 (.21) [2.53]
LL_LL	971	.777*** (.160) [4.85]	-.169 (.161) [1.05]	---------
All Interactions	*HH* 85 / *HL* 96 / *LL* 971	.952*** (.182) [5.22]	*HH* -.307 (.178) [-1.72] *HL* -.465 (.239) [-1.94] *LL* .036 (.173) [0.21]	---------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

Under the time-fixed effects model, levels of liquid liabilities have no significant effect on the currency union effect on trade with one exception: trade is predicted to fall by 74 percent for partners where one nation has high financial development and the other has low financial development (only significant at the 5 percent level).

Table 18 gives the currency union estimates under the time-fixed effects model for the 10 countries with the highest level of liquid liabilities and the 10 countries with the lowest levels of liquid liabilities. Consistent with theory, the currency union effect for the 10 countries with the lowest level of liquid liability is predicted to be 20 percent higher than the 10 most financially developed economies. These results are inconclusive given the wide standard error.

Table 18 LL, Time-Fixed Effects

Top 10 LL			**Bottom 10 LL**		
Country	**Avg**	**Time Effects**	**Country**	**Avg**	**Time Effects**
Japan	5728.11	0.77	Armenia	202.73	0.89
Malta	5482.29	0.77	Guinnea-Bissau	271.46	0.89
Hong Kong	5380.13	0.77	Bhutan	261.79	0.89
Switzerland	4850.04	0.79	Gabon	486.81	0.88
Cyprus	3533.46	0.82	DRC	148.91	0.89
Malaysia	2942.73	0.83	El Salvador	313.24	0.89
Singapore	3152.43	0.82	Costa Rica	1253.67	0.87
Portugal	2946.63	0.83	Uganda	312.20	0.89
Austria	3032.06	0.83	Tanzania	512.41	0.88
United Kingdom	3361.93	0.82	Bolivia	968.24	0.87
All	4040.98	0.80 (.51)	All	473.15	0.89 (.06)

Time-Fixed and Entity-Fixed Effects

A combined time-fixed effects and entity-fixed effects is used to remove the effects of trade partner specific characteristics and variation across time. An initial regression, excluding financial development indicators, predicts a currency union effect that will increase trade by 80 percent.[13]

Commercial Bank Assets

Table 19	*Observations*			*CU*	*Interaction*			*Net*
CCB Data	105,119			.292*** (.08) [3.39]	----------			.292
CCB12	105,119			.78*** (.13) [5.74]	-.0001*** (.00001) [-5.54]			.14 (.08) [1.72]
CCB_HH	130			.310*** (.086) [3.59]	-.454*** (.127) [-3.57]			-.144 (.148) [-0.97]
CCB_HL	40			.300*** (.086) [3.48]	-.341 (.306) [-1.59]			----------
CCB_LL	497			.180* (.09) [1.99]	.284*** (.078) [3.63]			.464 (.45) [4.68]
All Interactions	*HH* 130	*HL* 40	*LL* 497	.219* (.091) [2.39]	*HH* -.433*** (.128) [-3.37]	*HL* -.325 (.215) [-1.51]	*LL* .244*** (.079) [3.07]	----------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The results of the time-fixed and entity-fixed effects model reflect those of the fixed-effects model. The cumulative level of commercial to central bank assets reduces the currency union effect by 19 percent at the mean level of financial development. This implies a lower currency union effect for nations with higher ratios of commercial to central bank assets. Specifically, when two trade partners

[13] Using 219,558 observations with 99% confidence

have high ratios of commercial to central bank assets, the currency union effect falls by 47 percent. For countries with low levels of financial development, the currency union effect is 26 percent higher. The effect of financial development on the currency union effect is insignificant under this model for trade between an economy with high financial development and an economy with low financial development.

Table 20 compares the estimates of the currency union effects under the combined time-fixed and entity-fixed effects model for the 10 countries with the highest commercial bank assets to the 10 countries with the lowest levels of commercial bank assets. The findings suggest the currency union effect increases trade by less than 1 percent for the 10 most financially developed economies ($e^{.009}$= 1.009). In contrast, the currency union effect on trade increases by 64 percent ($e^{.49}$= 1.64) for countries with the 10 lowest levels of commercial bank assets.

Table 20 CCB, Time-Fixed Effects and Entity-Fixed Effects

Top 10 CCB			**Bottom 10 CCB**		
Country	**Avg**	**Time and Entity**	**Country**	**Avg**	**Time and Entity**
Austria	7525.76	-0.01	Afghanistan	887.11	0.68
Bahamas	7382.45	0.00	Angola	2584.23	0.50
France	7417.97	0.00	Bolivia	3607.23	0.40
Germany	7459.49	-0.00	Burma	2624.33	0.50
Ireland	7208.96	0.02	Cape Verde	2307.76	0.53
Kuwait	7569.49	-0.01	Haiti	2391.40	0.52
Netherlands	7486.10	-0.00	Liberia	2126.33	0.55
Thailand	6476.31	0.09	Nicaragua	4808.68	0.27
Singapore	7962.14	-0.05	Sierre Leone	3093.03	0.45
UAE	6873.76	0.05	Uganda	2421.92	0.52
All	7336.24	0.01 (.14)	All	2685.20	.49 (.05)

Private Credit

Table 21	*Observations*			*CU*	*Interaction*			*Net*
PC Data	117,897			.87*** (.11) [7.31]	----------			.87
PC12	117,897			.921*** (.12) [7.49]	-.00009 (.00005) [-1.76]			.773 (.13) [5.91]
PC_HH	42			.871*** (.119) [7.31]	-.101 (.217) [-0.47]			---------
PC_HL	51			.945*** (.123) [7.65]	-.554* (.249) [-2.22]			.391 (.248) [1.57]
PC_LL	868			.698*** (.142) [4.9]	.254* (.113) [2.24]			.952 (.12) [7.65]
All Interactions	*HH* 42	*HL* 51	*LL* 868	.783*** (.150) [5.22]	*HH* -.142 (.218) [-0.65]	*HL* -.485 (.255) [-1.90]	*LL* .219 (.115) [1.90]	----------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

The model shows that accounting for cumulative levels of private credit lowers the currency union effect by 22 percent. This reduction is greater for trade partners with higher levels of cumulative private credit. There is no significant effect found for levels of private credit on the currency union effect for trade between partners with high levels of financial development. For trade between one economy with high levels of private credit and one economy with low levels of private credit, the currency union effect decreases by 90 percent. The currency union effect is 21 percent higher for trade between economies with low levels of private credit.

Table 22 gives the currency union estimates for the 10 countries with the highest levels of private credit and the 10 countries with the lowest levels of private credit. The findings suggest that the currency union effect for the 10 countries with

the lowest levels of private credit will be 59 percent higher than the average effect for the 10 countries with the highest levels of private credit.

Table 22 PC, Time-Fixed Effects and Entity-Fixed Effects

Top 10 PC			**Bottom 10 PC**		
Country	**Avg**	**Time and Entity**	**Country**	**Avg**	**Time and Entity**
Japan	4103.99	0.55	Armenia	100.69	0.91
Cyprus	2666.04	0.68	DRC	15.46	0.91
Switzerland	3678.27	0.58	Tanzania	135.15	0.90
Hong Kong	3245.09	0.62	Azerbaijan	48.88	0.91
Thailand	1324.68	0.80	Ukraine	34.17	0.91
USA	3430.31	0.61	Uganda	91.00	0.91
Sweden	2587.33	0.68	Angola	51.36	0.91
United Kingdom	3992.91	0.56	Ghana	85.48	0.91
South Africa	2077.29	0.73	Syria	215.14	0.90
Germany	3530.04	0.60	Haiti	360.03	0.88
All	3063.59	0.64 (.30)	All	113.74	.91 (.01)

Liquid Liabilities

Table 23	*Observations*			*CU*	*Interaction*			*Net*
LL Data	118,381			.92*** (.12) [7.62]	----------			.92
LL12	118,381			.96*** (.13) [7.13]	-.00004 (.000068) [-.68]			----------
LL_HH	85			.928*** (.121) [7.62]	-.194 (.17) [-1.10]			----------
LL_HL	96			1.024*** (.129) [7.89]	-.478* (.223) [-2.14]			----------
LL_LL	971			.776*** (.169) [4.58]	.214 (.166) [1.29]			----------
All Interactions	*HH* 85	*HL* 96	*LL* 971	.962*** (.194) [4.95]	*HH* -.250 (.178) [-1.40]	*HL* -.475* (.242) [-1.96]	*LL* .086 (.178) [0.48]	----------

Note—Coefficients with a p-value less than .05 are identified with a *; less than .1 a **; and less than .01 with a ***

Under the time-fixed and entity-fixed effects model, levels of liquid liabilities appear to have no significant impact on the currency union effect.

Table 24 compares the estimate of the currency union effect under the combined time-fixed and entity-fixed effects model for the 10 countries with the highest levels of liquid liabilities and the 10 countries with the lowest liquid liabilities. The currency union effect for the 10 countries with the lowest level of liquid liabilities is found to be 35 percent higher than for the countries with the 10 highest levels of liquid liabilities. This result are inconclusive given the wide standard error.

Table 24 LL, Time-Fixed Effects and Entity-Fixed Effects

Top 10 LL			**Bottom 10 LL**		
Country	**Avg**	**Time and Entity**	**Country**	**Avg**	**Time and Entity**
Japan	5728.11	0.730875327	Armenia	202.73	0.95
Malta	5482.29	0.74	Guinnea-Bissau	271.46	0.94
Hong Kong	5380.13	0.74	Bhutan	261.79	0.94
Switzerland	4850.04	0.76	Gabon	486.81	0.94
Cyprus	3533.46	0.81	DRC	148.91	0.95
Malaysia	2942.73	0.84	El Salvador	313.24	0.94
Singapore	3152.43	0.83	Costa Rica	1253.67	0.90
Portugal	2946.63	0.84	Uganda	312.20	0.94
Austria	3032.06	0.83	Tanzania	512.41	0.93
United Kingdom	3361.93	0.82	Bolivia	968.24	0.92
All	4040.98	.79 (.87)	All	4040.98	0.94 (.10)

Conclusion and Policy Recommendations

Using observations of bilateral trade from 1960 to 1997 taken from the Glick and Rose (2001) gravity model and over 219,558 observations of financial development, the paper tests whether the strength of the currency union effect on trade varies across levels of financial development. Evidence suggests that there is a negative relationship between financial development and the strength of the currency union effect. That is, countries with low levels of financial development experience a higher gain in trade from currency union formation than countries with high levels of financial development. This claim is supported by most measures of commercial bank assets and private credit. These findings imply that the efficiency of financial institutions may play an important role in determining the impact of currency union formation on trade. Measures of liquid liabilities are mostly insignificant implying that the size of a country's financial sector has very little impact on the currency union effect on trade.

As the first, formal attempt to measure the relationship between financial development and the currency union effect on trade, this paper sets a benchmark for further testing. The findings add to previous theories of the role of financial development on the effect of exchange rate volatility on trade by supporting what many have theorized: economies with lower levels of financial development are more adversely affected by exchange rate volatility than economies with better developed financial systems.

This research should encourage policymakers in economies with low levels of financial development to consider the trade benefits of joining a currency union. The

evidence suggests that a currency union will increase trade significantly, especially if it is with another economy with low financial development.

For economies with well-developed financial systems, the decision to join a currency union should be taken with great consideration. The findings of this paper suggest that the currency union effect on trade for these nations will still be positive, but only marginally so. Considering the significant loss of power and seignorage associated with abandoning national currencies, some nations may even be negatively affected by currency union formation.

Two contradictions result from this study. First, the pooled OLS model predicts a higher currency union effect for trade partners that have high levels of financial development. This paper argues that the pooled OLS regression fails to account for country-pair and time effects captured in subsequent models. Second, there is consistently a large, negative impact on the currency union effect when one trade partner has low levels of financial development and the other has high levels of financial development. This paper argues that this is the result of a lack of data as well as country-specific circumstances. For instance, in the case of the ratio of commercial to central bank assets, all 40 observations that have a trade partner with high financial development joining a currency union with a nation with low financial development come from former French colonies in Africa using the CFA Franc. For private credit observations involving one partner with high financial development joining a currency union with a nation with low financial development, 50 out of the 51 observations come from Latin American nations adopting the U.S. Dollar. Similarly, for observations of liquid liabilities where a currency union exists between a partner with high financial development and a partner with low financial development, 91 out of the 96 observations come from Latin American trade with the

United States. These findings suggest that there may be specific circumstances and policies acting against the currency union effect on trade in these observations.

The research is limited by the timeline of available data as many significant developments in currency unions occurred from 1996 to present. Additionally, data from the Eurozone, as the most studied currency union in recent literature, would add to the strength of the current research. Furthermore, some research suggests that the effect of currency unions has fallen in recent years because of technological advancements in international finance and currency exchange (De Sousa 2011). Recent evidence on the currency union effect also points to the importance of historical events in the effectiveness of currency unions, arguing that currency unions themselves may have very little effect on trade (Campbell 2012).

Further research on this topic may benefit from more recent data to understand the effect of the Eurozone. Also, to further clarify the findings of this paper, a dataset with country-level trade data rather than bilateral trade data may better capture the effect of financial development for both countries rather than relying on findings based on paired trade data.

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Appendix

Table 1A
Pooled OLS Regressions for All Commercial-Central Bank Assets Data

	(1) Ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
Custrict	1.430*** (27.70)	0.919*** (5.67)	1.374*** (25.91)	1.458*** (28.01)	1.324*** (22.55)	1.295*** (20.92)
landl	- 0.212*** (-17.44)	-0.219*** (-18.20)	-0.217*** (-17.88)	- 0.238*** (-19.50)	- 0.220*** (-18.19)	-0.245*** (-20.05)
island	0.00893 (0.70)	-0.0101 (-0.80)	0.00895 (0.71)	0.0215 (1.69)	0.00258 (0.20)	0.0119 (0.94)
border	0.341*** (9.46)	0.325*** (9.08)	0.334*** (9.28)	0.355*** (9.88)	0.369*** (10.29)	0.369*** (10.28)
comlang	0.365*** (25.26)	0.382*** (26.66)	0.367*** (25.42)	0.375*** (26.00)	0.385*** (26.73)	0.393*** (27.31)
comcol	0.239*** (10.95)	0.233*** (10.74)	0.236*** (10.83)	0.228*** (10.46)	0.238*** (10.94)	0.227*** (10.46)
comctry	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
colony	1.298*** (25.42)	1.274*** (25.13)	1.296*** (25.40)	1.276*** (25.03)	1.266*** (24.91)	1.252*** (24.65)
curcol	2.941*** (4.43)	2.630*** (3.99)	2.878*** (4.34)	2.995*** (4.52)	2.921*** (4.42)	2.883*** (4.37)
regional	0.896*** (19.50)	0.876*** (19.11)	0.889*** (19.34)	0.910*** (19.83)	0.885*** (19.32)	0.890*** (19.43)
lareap	-0.00368 (-1.25)	0.0103*** (3.52)	-0.00118 (-0.40)	0.00188 (0.64)	0.00250 (0.86)	0.00891** (3.01)
ldist	- 1.255*** (-150.52)	-1.267*** (-152.86)	-1.254*** (-150.44)	- 1.261*** (-151.28)	- 1.274*** (-153.14)	-1.276*** (-153.40)
lrgdp	0.864***	0.856***	0.862***	0.859***	0.864***	0.858***

	(251.47)	(250.61)	(250.31)	(249.54)	(252.54)	(249.31)
lrgdppc	0.571*** (108.27)	0.478*** (84.92)	0.566*** (106.13)	0.573*** (108.60)	0.516*** (94.17)	0.514*** (92.91)
ccb12		0.000128*** (45.35)				
cuccb12		0.0000365 (1.59)				
ccb_HH			0.185*** (7.21)			0.227*** (8.78)
cu_ccb_HH			0.662*** (3.41)			0.526** (2.69)
ccb_HL				0.261*** (18.26)		0.179*** (12.19)
cu_ccb_HL				-0.0941 (-0.28)		-0.113 (-0.34)
ccb_LL					-0.596*** (-35.74)	-0.551*** (-32.29)
cu_ccb_LL					0.0894 (0.82)	0.111 (1.00)
_cons	-30.53*** (-244.17)	-29.70*** (-236.44)	-30.43*** (-241.70)	-30.45*** (-243.62)	-29.54*** (-231.47)	-29.43*** (-229.28)
N	145389	145389	145389	145389	145389	145389
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 2A
Fixed Effects Regression for All Commercial-Central Bank Assets Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.328*** (3.78)	0.904*** (6.57)	0.347*** (3.99)	0.335*** (3.85)	0.187* (2.05)	0.224* (2.43)
landl	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
island	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
border	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comlang	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comcol	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comctry	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
colony	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
curcol	0.105 (0.23)	-0.193 (-0.42)	0.0465 (0.10)	0.104 (0.22)	0.103 (0.22)	0.0375 (0.08)
regional	0.440*** (7.78)	0.433*** (7.68)	0.431*** (7.62)	0.440*** (7.78)	0.439*** (7.75)	0.430*** (7.61)
lareap	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
ldist	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
lrgdp	0.0289* (2.25)	0.143*** (10.70)	0.0302* (2.35)	0.0284* (2.21)	0.0452*** (3.48)	0.0489*** (3.73)
lrgdppc	0.896*** (42.94)	0.673*** (30.62)	0.886*** (42.20)	0.897*** (42.88)	0.858*** (40.40)	0.845*** (39.46)
ccb12		0.000104*** (35.61)				
cuccb12		- 0.000119*** (-6.44)				

ccb_HH			0.136***			0.136***
			(6.87)			(6.86)
cu_ccb_HH			-0.497***			-0.459***
			(-3.87)			(-3.54)
ccb_HL				-0.00198		-0.0131
				(-0.17)		(-1.14)
cu_ccb_HL				-0.307		-0.272
				(-1.42)		(-1.26)
ccb_LL					-0.202***	-0.204***
					(-14.79)	(-14.88)
cu_ccb_LL					0.365***	0.322***
					(4.62)	(4.02)
_cons	-5.931***	-8.455***	-5.838***	-5.923***	-6.075***	-6.047***
	(-17.58)	(-24.40)	(-17.29)	(-17.42)	(-17.89)	(-17.64)
N	145389	145389	145389	145389	145389	145389

t statistics in parentheses * p<0.05 ** p<0.01 *** p<0.001

Table 3A
Time-Fixed Effects Regression for All Commercial-Central Bank Assets Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.374***	0.830***	0.390***	0.387***	0.266**	0.305***
	(4.61)	(6.20)	(4.79)	(4.76)	(3.10)	(3.51)
landl	-0.296***	-0.319***	-0.299***	-0.297***	-0.294***	-0.297***
	(-7.03)	(-7.61)	(-7.11)	(-7.06)	(-7.01)	(-7.11)
island	0.175***	0.181***	0.180***	0.176***	0.175***	0.182***
	(3.40)	(3.54)	(3.50)	(3.44)	(3.43)	(3.57)
border	0.425**	0.394*	0.416**	0.427**	0.430**	0.422**
	(2.66)	(2.49)	(2.61)	(2.69)	(2.71)	(2.67)
comlang	0.317***	0.344***	0.319***	0.318***	0.325***	0.327***
	(5.21)	(5.69)	(5.24)	(5.23)	(5.37)	(5.42)
comcol	0.140	0.124	0.137	0.140	0.142	0.140
	(1.74)	(1.55)	(1.72)	(1.76)	(1.79)	(1.76)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	1.754***	1.741***	1.754***	1.750***	1.738***	1.736***
	(6.76)	(6.76)	(6.77)	(6.77)	(6.75)	(6.75)
curcol	-0.0903	-0.304	-0.152	-0.0735	-0.0788	-0.132
	(-0.20)	(-0.66)	(-0.33)	(-0.16)	(-0.17)	(-0.29)
regional	0.717***	0.693***	0.710***	0.719***	0.715***	0.709***
	(13.02)	(12.63)	(12.89)	(13.06)	(12.98)	(12.88)
lareap	-0.0184	-0.0193	-0.0182	-0.0181	-0.0192	-0.0187
	(-1.67)	(-1.76)	(-1.66)	(-1.65)	(-1.75)	(-1.71)
ldist	-1.458***	-1.472***	-1.458***	-1.458***	-1.465***	-1.466***
	(-46.58)	(-47.36)	(-46.64)	(-46.73)	(-47.13)	(-47.26)
lrgdp	0.886***	0.900***	0.888***	0.886***	0.891***	0.893***
	(73.50)	(75.04)	(73.69)	(73.68)	(74.24)	(74.54)

lrgdppc	0.360***	0.245***	0.349***	0.361***	0.335***	0.323***
	(23.99)	(15.96)	(23.13)	(24.09)	(22.19)	(21.35)
1960b.year	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
1961.year	-0.156**	-0.154**	-0.157**	-0.158**	-0.154**	-0.158**
	(-2.97)	(-2.95)	(-2.99)	(-3.02)	(-2.95)	(-3.01)
1962.year	-0.220***	-0.220***	-0.220***	-0.222***	-0.225***	-0.227***
	(-4.25)	(-4.27)	(-4.25)	(-4.29)	(-4.34)	(-4.38)
1963.year	-0.265***	-0.269***	-0.266***	-0.269***	-0.265***	-0.269***
	(-5.27)	(-5.37)	(-5.29)	(-5.35)	(-5.26)	(-5.34)
1964.year	-0.259***	-0.255***	-0.259***	-0.263***	-0.259***	-0.261***
	(-5.29)	(-5.21)	(-5.28)	(-5.35)	(-5.29)	(-5.33)
1965.year	-0.357***	-0.352***	-0.355***	-0.358***	-0.367***	-0.366***
	(-7.35)	(-7.29)	(-7.31)	(-7.37)	(-7.56)	(-7.54)
1966.year	-0.352***	-0.360***	-0.350***	-0.352***	-0.364***	-0.363***
	(-7.48)	(-7.69)	(-7.45)	(-7.50)	(-7.75)	(-7.73)
1967.year	-0.442***	-0.455***	-0.442***	-0.444***	-0.455***	-0.455***
	(-9.41)	(-9.72)	(-9.39)	(-9.44)	(-9.68)	(-9.68)
1968.year	-0.583***	-0.600***	-0.583***	-0.586***	-0.593***	-0.595***
	(-12.35)	(-12.75)	(-12.35)	(-12.40)	(-12.56)	(-12.60)
1969.year	-0.880***	-0.890***	-0.880***	-0.883***	-0.894***	-0.896***
	(-19.09)	(-19.40)	(-19.10)	(-19.15)	(-19.41)	(-19.45)
1970.year	-0.945***	-0.961***	-0.945***	-0.949***	-0.963***	-0.965***
	(-20.55)	(-20.97)	(-20.55)	(-20.62)	(-20.95)	(-20.99)
1971.year	-1.008***	-1.025***	-1.008***	-1.013***	-1.022***	-1.025***
	(-21.92)	(-22.37)	(-21.92)	(-22.02)	(-22.22)	(-22.29)
1972.year	-0.998***	-1.025***	-1.000***	-1.002***	-1.025***	-1.030***
	(-21.65)	(-22.31)	(-21.69)	(-21.72)	(-22.23)	(-22.33)
1973.year	-0.864***	-0.893***	-0.866***	-0.867***	-0.887***	-0.892***
	(-18.97)	(-19.68)	(-19.02)	(-19.04)	(-19.48)	(-19.59)
1974.year	-0.695***	-0.724***	-0.697***	-0.699***	-0.716***	-0.721***
	(-15.27)	(-15.96)	(-15.32)	(-15.36)	(-15.74)	(-15.85)
1975.year	-0.764***	-0.771***	-0.763***	-0.768***	-0.781***	-0.781***

	(-16.79)	(-16.99)	(-16.76)	(-16.87)	(-17.16)	(-17.17)
1976.year	-0.857***	-0.849***	-0.853***	-0.860***	-0.869***	-0.866***
	(-18.87)	(-18.78)	(-18.78)	(-18.93)	(-19.14)	(-19.08)
1977.year	-0.840***	-0.828***	-0.837***	-0.844***	-0.848***	-0.848***
	(-18.39)	(-18.21)	(-18.33)	(-18.47)	(-18.58)	(-18.58)
1978.year	-0.911***	-0.878***	-0.905***	-0.914***	-0.915***	-0.911***
	(-19.85)	(-19.21)	(-19.73)	(-19.92)	(-19.96)	(-19.87)
1979.year	-0.926***	-0.890***	-0.920***	-0.929***	-0.932***	-0.928***
	(-20.17)	(-19.45)	(-20.03)	(-20.24)	(-20.32)	(-20.22)
1980.year	-0.987***	-0.930***	-0.982***	-0.991***	-0.994***	-0.991***
	(-21.55)	(-20.37)	(-21.43)	(-21.63)	(-21.72)	(-21.64)
1981.year	-1.102***	-1.027***	-1.097***	-1.106***	-1.106***	-1.103***
	(-24.04)	(-22.48)	(-23.93)	(-24.13)	(-24.16)	(-24.09)
1982.year	-1.266***	-1.182***	-1.260***	-1.270***	-1.269***	-1.265***
	(-27.68)	(-25.90)	(-27.55)	(-27.76)	(-27.76)	(-27.67)
1983.year	-1.403***	-1.295***	-1.397***	-1.407***	-1.403***	-1.399***
	(-30.61)	(-28.30)	(-30.49)	(-30.69)	(-30.64)	(-30.56)
1984.year	-1.450***	-1.340***	-1.445***	-1.455***	-1.445***	-1.443***
	(-31.48)	(-29.14)	(-31.39)	(-31.58)	(-31.40)	(-31.36)
1985.year	-1.534***	-1.428***	-1.529***	-1.539***	-1.534***	-1.532***
	(-33.31)	(-31.06)	(-33.22)	(-33.41)	(-33.34)	(-33.30)
1986.year	-1.582***	-1.477***	-1.577***	-1.587***	-1.578***	-1.577***
	(-34.29)	(-32.07)	(-34.20)	(-34.40)	(-34.26)	(-34.22)
1987.year	-1.614***	-1.517***	-1.609***	-1.619***	-1.610***	-1.608***
	(-34.81)	(-32.80)	(-34.71)	(-34.92)	(-34.77)	(-34.73)
1988.year	-1.590***	-1.495***	-1.586***	-1.596***	-1.589***	-1.589***
	(-34.25)	(-32.27)	(-34.18)	(-34.38)	(-34.27)	(-34.26)
1989.year	-1.628***	-1.542***	-1.625***	-1.634***	-1.628***	-1.630***
	(-35.04)	(-33.28)	(-34.99)	(-35.17)	(-35.09)	(-35.12)
1990.year	-1.637***	-1.555***	-1.637***	-1.646***	-1.635***	-1.640***
	(-35.11)	(-33.44)	(-35.12)	(-35.27)	(-35.10)	(-35.19)
1991.year	-1.640***	-1.557***	-1.640***	-1.648***	-1.639***	-1.643***
	(-35.10)	(-33.42)	(-35.10)	(-35.25)	(-35.11)	(-35.19)

1992.year	-1.611*** (-34.46)	-1.530*** (-32.81)	-1.614*** (-34.54)	-1.620*** (-34.62)	-1.612*** (-34.53)	-1.621*** (-34.69)
1993.year	-1.753*** (-37.55)	-1.671*** (-35.88)	-1.754*** (-37.58)	-1.762*** (-37.71)	-1.751*** (-37.54)	-1.758*** (-37.65)
1994.year	-1.674*** (-35.77)	-1.602*** (-34.33)	-1.675*** (-35.81)	-1.682*** (-35.92)	-1.676*** (-35.85)	-1.683*** (-35.97)
1995.year	-1.623*** (-34.46)	-1.562*** (-33.26)	-1.626*** (-34.54)	-1.632*** (-34.62)	-1.626*** (-34.56)	-1.635*** (-34.72)
1996.year	-1.611*** (-33.99)	-1.560*** (-33.03)	-1.616*** (-34.11)	-1.619*** (-34.15)	-1.620*** (-34.22)	-1.631*** (-34.43)
1997.year	-1.598*** (-33.56)	-1.567*** (-33.03)	-1.607*** (-33.75)	-1.608*** (-33.72)	-1.610*** (-33.85)	-1.626*** (-34.13)
ccb12		0.0000976*** (33.63)				
cuccb12		-0.0000959*** (-5.29)				
ccb_HH			0.152*** (7.77)			0.162*** (8.22)
cu_ccb_HH			-0.417** (-3.27)			-0.408** (-3.16)
ccb_HL				0.0338** (2.98)		0.0239* (2.08)
cu_ccb_HL				-0.391 (-1.82)		-0.383 (-1.78)
ccb_LL					-0.217*** (-16.05)	-0.215*** (-15.81)
cu_ccb_LL					0.281*** (3.59)	0.246** (3.10)
_cons	-25.26***	-24.63***	-25.19***	-25.28***	-24.97***	-24.91***

	(-62.97)	(-61.74)	(-62.85)	(-63.19)	(-62.53)	(-62.50)
N	145389	145389	145389	145389	145389	145389
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 4A
Time-Fixed and Entity-Fixed Effects Regression for All Commercial-Central Bank Assets Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.292***	0.786***	0.310***	0.301***	0.181*	0.220*
	(3.39)	(5.74)	(3.59)	(3.48)	(1.99)	(2.39)
landl	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
island	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
border	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comlang	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comcol	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
curcol	0.0350	-0.192	-0.0199	0.0403	0.0404	-0.0159
	(0.08)	(-0.42)	(-0.04)	(0.09)	(0.09)	(-0.03)
regional	0.550***	0.545***	0.546***	0.551***	0.551***	0.548***
	(9.67)	(9.60)	(9.59)	(9.68)	(9.69)	(9.62)
lareap	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
ldist	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
lrgdp	0.407***	0.492***	0.416***	0.406***	0.425***	0.437***
	(14.60)	(17.55)	(14.90)	(14.58)	(15.21)	(15.56)
lrgdppc	0.611***	0.421***	0.593***	0.612***	0.575***	0.555***
	(22.24)	(14.88)	(21.38)	(22.26)	(20.69)	(19.80)
1960b.year	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)

1961.year	-0.120*	-0.121*	-0.121*	-0.121*	-0.120*	-0.122*
	(-2.30)	(-2.32)	(-2.32)	(-2.32)	(-2.29)	(-2.33)
1962.year	-0.146**	-0.149**	-0.146**	-0.147**	-0.151**	-0.152**
	(-2.82)	(-2.90)	(-2.83)	(-2.84)	(-2.92)	(-2.95)
1963.year	-0.161**	-0.170***	-0.163**	-0.163**	-0.162**	-0.164**
	(-3.20)	(-3.39)	(-3.23)	(-3.23)	(-3.22)	(-3.27)
1964.year	-0.116*	-0.119*	-0.116*	-0.118*	-0.118*	-0.119*
	(-2.36)	(-2.42)	(-2.37)	(-2.39)	(-2.40)	(-2.42)
1965.year	-0.180***	-0.185***	-0.180***	-0.180***	-0.191***	-0.192***
	(-3.68)	(-3.80)	(-3.68)	(-3.69)	(-3.92)	(-3.93)
1966.year	-0.164***	-0.181***	-0.164***	-0.165***	-0.178***	-0.178***
	(-3.46)	(-3.84)	(-3.46)	(-3.47)	(-3.75)	(-3.76)
1967.year	-0.223***	-0.247***	-0.223***	-0.223***	-0.236***	-0.238***
	(-4.67)	(-5.19)	(-4.69)	(-4.68)	(-4.96)	(-4.99)
1968.year	-0.329***	-0.359***	-0.331***	-0.330***	-0.341***	-0.344***
	(-6.84)	(-7.49)	(-6.87)	(-6.85)	(-7.10)	(-7.14)
1969.year	-0.585***	-0.612***	-0.588***	-0.586***	-0.602***	-0.605***
	(-12.37)	(-12.97)	(-12.42)	(-12.39)	(-12.72)	(-12.79)
1970.year	-0.610***	-0.644***	-0.613***	-0.612***	-0.631***	-0.634***
	(-12.82)	(-13.56)	(-12.87)	(-12.85)	(-13.25)	(-13.32)
1971.year	-0.646***	-0.681***	-0.648***	-0.648***	-0.663***	-0.666***
	(-13.46)	(-14.25)	(-13.51)	(-13.50)	(-13.82)	(-13.89)
1972.year	-0.610***	-0.656***	-0.614***	-0.611***	-0.639***	-0.644***
	(-12.62)	(-13.62)	(-12.71)	(-12.65)	(-13.22)	(-13.33)
1973.year	-0.445***	-0.496***	-0.450***	-0.447***	-0.472***	-0.478***
	(-9.26)	(-10.34)	(-9.36)	(-9.28)	(-9.80)	(-9.92)
1974.year	-0.241***	-0.293***	-0.246***	-0.242***	-0.265***	-0.272***

	(-4.95)	(-6.06)	(-5.06)	(-4.98)	(-5.46)	(-5.60)
1975.year	-0.293***	-0.326***	-0.295***	-0.294***	-0.314***	-0.318***
	(-5.98)	(-6.69)	(-6.03)	(-6.01)	(-6.42)	(-6.50)
1976.year	-0.354***	-0.376***	-0.355***	-0.355***	-0.372***	-0.373***
	(-7.19)	(-7.66)	(-7.20)	(-7.20)	(-7.55)	(-7.57)
1977.year	-0.304***	-0.325***	-0.307***	-0.306***	-0.319***	-0.323***
	(-6.08)	(-6.52)	(-6.13)	(-6.11)	(-6.39)	(-6.46)
1978.year	-0.348***	-0.351***	-0.348***	-0.349***	-0.361***	-0.362***
	(-6.86)	(-6.94)	(-6.87)	(-6.88)	(-7.12)	(-7.13)
1979.year	-0.333***	-0.334***	-0.333***	-0.334***	-0.348***	-0.349***
	(-6.49)	(-6.54)	(-6.49)	(-6.52)	(-6.79)	(-6.81)
1980.year	-0.370***	-0.354***	-0.371***	-0.372***	-0.386***	-0.388***
	(-7.15)	(-6.86)	(-7.17)	(-7.18)	(-7.46)	(-7.51)
1981.year	-0.461***	-0.430***	-0.463***	-0.463***	-0.476***	-0.478***
	(-8.85)	(-8.28)	(-8.87)	(-8.87)	(-9.13)	(-9.17)
1982.year	-0.613***	-0.576***	-0.614***	-0.615***	-0.627***	-0.629***
	(-11.69)	(-11.02)	(-11.72)	(-11.72)	(-11.96)	(-12.00)
1983.year	-0.734***	-0.677***	-0.736***	-0.735***	-0.746***	-0.749***
	(-13.88)	(-12.83)	(-13.91)	(-13.90)	(-14.11)	(-14.15)
1984.year	-0.761***	-0.705***	-0.764***	-0.763***	-0.769***	-0.774***
	(-14.22)	(-13.21)	(-14.28)	(-14.25)	(-14.38)	(-14.45)
1985.year	-0.824***	-0.773***	-0.827***	-0.825***	-0.836***	-0.840***
	(-15.25)	(-14.35)	(-15.31)	(-15.28)	(-15.49)	(-15.57)
1986.year	-0.845***	-0.798***	-0.849***	-0.847***	-0.856***	-0.860***
	(-15.48)	(-14.66)	(-15.54)	(-15.51)	(-15.68)	(-15.76)

1987.year	-0.843***	-0.805***	-0.846***	-0.845***	-0.853***	-0.858***
	(-15.22)	(-14.59)	(-15.28)	(-15.25)	(-15.41)	(-15.50)
1988.year	-0.799***	-0.765***	-0.803***	-0.801***	-0.812***	-0.818***
	(-14.27)	(-13.71)	(-14.35)	(-14.30)	(-14.51)	(-14.62)
1989.year	-0.806***	-0.784***	-0.812***	-0.808***	-0.821***	-0.829***
	(-14.21)	(-13.88)	(-14.32)	(-14.25)	(-14.49)	(-14.62)
1990.year	-0.797***	-0.781***	-0.806***	-0.800***	-0.810***	-0.821***
	(-13.92)	(-13.68)	(-14.06)	(-13.95)	(-14.15)	(-14.31)
1991.year	-0.789***	-0.773***	-0.797***	-0.791***	-0.803***	-0.813***
	(-13.64)	(-13.42)	(-13.78)	(-13.67)	(-13.89)	(-14.05)
1992.year	-0.737***	-0.726***	-0.748***	-0.740***	-0.754***	-0.767***
	(-12.60)	(-12.46)	(-12.79)	(-12.64)	(-12.90)	(-13.11)
1993.year	-0.865***	-0.854***	-0.875***	-0.868***	-0.879***	-0.891***
	(-14.67)	(-14.54)	(-14.83)	(-14.71)	(-14.92)	(-15.10)
1994.year	-0.768***	-0.769***	-0.779***	-0.771***	-0.787***	-0.799***
	(-12.90)	(-12.96)	(-13.06)	(-12.93)	(-13.21)	(-13.40)
1995.year	-0.685***	-0.698***	-0.697***	-0.688***	-0.705***	-0.719***
	(-11.30)	(-11.56)	(-11.49)	(-11.34)	(-11.63)	(-11.84)
1996.year	-0.651***	-0.677***	-0.665***	-0.654***	-0.677***	-0.694***
	(-10.61)	(-11.07)	(-10.83)	(-10.64)	(-11.04)	(-11.28)
1997.year	-0.639***	-0.687***	-0.657***	-0.643***	-0.669***	-0.689***
	(-10.30)	(-11.10)	(-10.57)	(-10.34)	(-10.77)	(-11.06)
ccb12		0.0000952***				
		(31.76)				

cuccb12		-0.000101*** (-5.54)				
ccb_HH			0.129*** (6.50)			0.135*** (6.76)
cu_ccb_HH			-0.454*** (-3.57)			-0.433*** (-3.37)
ccb_HL				0.0109 (0.95)		0.00221 (0.19)
cu_ccb_HL				-0.341 (-1.59)		-0.326 (-1.51)
ccb_LL					-0.189*** (-13.86)	-0.191*** (-13.87)
cu_ccb_LL					0.285*** (3.63)	0.245** (3.07)
_cons	-18.89*** (-20.02)	-20.51*** (-21.73)	-19.08*** (-20.18)	-18.89*** (-20.01)	-19.16*** (-20.28)	-19.39*** (-20.49)
N	145389	145389	145389	145389	145389	145389

t statistics in parentheses * p<0.05 ** p<0.01 *** p<0.001

Table 5A
Pooled OLS Regression for All Private Credit Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	1.777***	1.816***	1.787***	1.816***	1.790***	2.036***
	(29.53)	(25.43)	(29.27)	(29.61)	(18.39)	(18.84)
landl	-0.285***	-0.313***	-0.289***	-0.338***	-0.316***	-0.359***
	(-21.38)	(-23.38)	(-21.63)	(-25.21)	(-23.68)	(-26.65)
island	0.0500***	0.0307*	0.0494***	0.0585***	0.0658***	0.0645***
	(3.77)	(2.31)	(3.72)	(4.42)	(4.97)	(4.87)
border	0.472***	0.446***	0.464***	0.516***	0.526***	0.536***
	(10.85)	(10.25)	(10.66)	(11.89)	(12.09)	(12.33)
comlang	0.427***	0.432***	0.428***	0.457***	0.455***	0.473***
	(27.27)	(27.64)	(27.33)	(29.20)	(29.07)	(30.25)
comcol	0.246***	0.224***	0.240***	0.236***	0.240***	0.224***
	(10.52)	(9.56)	(10.28)	(10.15)	(10.29)	(9.63)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	1.219***	1.205***	1.219***	1.099***	1.147***	1.071***
	(22.81)	(22.59)	(22.82)	(20.58)	(21.51)	(20.07)
curcol	1.720**	1.489**	1.681**	1.966***	1.878***	1.945***
	(3.13)	(2.72)	(3.06)	(3.59)	(3.43)	(3.56)
regional	0.348***	0.371***	0.351***	0.378***	0.340***	0.353***
	(6.74)	(7.15)	(6.78)	(7.34)	(6.55)	(6.80)
lareap	-0.0539***	-0.0439***	-0.0526***	-0.0496***	-0.0399***	-0.0379***
	(-17.61)	(-14.11)	(-17.12)	(-16.23)	(-12.87)	(-12.23)
ldist	-1.256***	-1.247***	-1.252***	-1.272***	-1.263***	-1.265***
	(-137.51)	(-136.47)	(-136.78)	(-139.45)	(-138.55)	(-138.65)
lrgdp	0.903***	0.882***	0.899***	0.890***	0.890***	0.875***
	(238.67)	(223.63)	(234.41)	(234.16)	(234.24)	(225.47)
lrgdppc	0.612***	0.576***	0.606***	0.605***	0.560***	0.557***

	(104.36)	(93.10)	(101.22)	(103.24)	(90.63)	(88.68)
pc12		0.0000651*** (18.18)				
cupc12		-0.000127** (-2.65)				
pc_HH			0.145*** (5.38)			0.330*** (11.79)
cupc_HH			-0.631 (-1.91)			-1.067** (-3.15)
pc_HL				0.378*** (27.85)		0.329*** (21.24)
cupc_HL				-0.912** (-3.12)		-1.108*** (-3.64)
pc_LL					-0.418*** (-26.70)	-0.266*** (-15.45)
cupc_LL					-0.0460 (-0.39)	-0.329** (-2.58)
_cons	-31.89*** (-228.24)	-30.72*** (-199.54)	-31.69*** (-219.11)	-31.23*** (-220.85)	-30.59*** (-207.18)	-30.04*** (-196.12)
N	114473	114473	114473	114473	114473	114473
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 6A
Fixed Effects Regression for All Private Credit Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.936***	0.985***	0.935***	1.006***	0.789***	0.872***
	(7.79)	(7.96)	(7.78)	(8.09)	(5.50)	(5.78)
landl	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
island	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
border	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comlang	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comcol	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
curcol	0.0828	0.110	0.0789	0.0781	0.0788	0.0740
	(0.18)	(0.24)	(0.17)	(0.17)	(0.17)	(0.16)
regional	0.468***	0.465***	0.460***	0.467***	0.466***	0.460***
	(7.74)	(7.69)	(7.62)	(7.73)	(7.72)	(7.61)
lareap	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
ldist	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
lrgdp	0.149***	0.139***	0.149***	0.151***	0.154***	0.153***
	(9.75)	(9.06)	(9.75)	(9.83)	(9.76)	(9.69)
lrgdppc	0.723***	0.698***	0.711***	0.720***	0.719***	0.707***
	(29.82)	(28.52)	(29.17)	(29.61)	(29.39)	(28.75)
pc12		0.0000282***				

		(7.78)				
cupc12		-0.0000944 (-1.69)				
pc_HH			0.109*** (4.78)			0.107*** (4.61)
cupc_HH			0.0147 (0.07)			-0.0238 (-0.11)
pc_HL				-0.0167 (-1.34)		-0.00638 (-0.50)
cupc_HL				-0.532* (-2.12)		-0.464 (-1.80)
pc_LL					0.0177 (1.22)	0.0139 (0.95)
cupc_LL					0.217 (1.91)	0.182 (1.57)
_cons	-8.915*** (-22.02)	-8.063*** (-19.22)	-8.725*** (-21.45)	-9.001*** (-21.89)	-9.093*** (-21.22)	-8.897*** (-20.44)
N	114473	114473	114473	114473	114473	114473
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001"			

Table 7A
Time-Fixed Effects Regression for All Private Credit Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.859***	0.897***	0.856***	0.922***	0.678***	0.759***
	(7.99)	(8.04)	(7.96)	(8.33)	(5.11)	(5.46)
landl	-0.391***	-0.400***	-0.395***	-0.390***	-0.389***	-0.393***
	(-8.96)	(-9.22)	(-9.04)	(-9.01)	(-9.00)	(-9.15)
island	0.00821	0.00576	0.0104	0.00823	0.00587	0.00783
	(0.16)	(0.11)	(0.20)	(0.16)	(0.11)	(0.15)
border	0.435**	0.409*	0.427*	0.435**	0.437**	0.431**
	(2.62)	(2.48)	(2.57)	(2.64)	(2.66)	(2.64)
comlang	0.353***	0.350***	0.354***	0.352***	0.352***	0.352***
	(5.48)	(5.46)	(5.49)	(5.51)	(5.53)	(5.56)
comcol	0.148	0.128	0.142	0.147	0.155	0.148
	(1.76)	(1.53)	(1.69)	(1.77)	(1.87)	(1.79)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	1.808***	1.768***	1.801***	1.802***	1.795***	1.782***
	(8.97)	(8.84)	(8.94)	(9.03)	(9.02)	(9.01)
curcol	-0.0336	-0.0165	-0.0441	-0.0287	-0.0239	-0.0277
	(-0.08)	(-0.04)	(-0.10)	(-0.06)	(-0.05)	(-0.06)
regional	0.675***	0.684***	0.667***	0.678***	0.675***	0.671***
	(11.55)	(11.71)	(11.42)	(11.60)	(11.56)	(11.48)
lareap	-0.0746***	-0.0774***	-0.0762***	-0.0748***	-0.0723***	-0.0736***
	(-6.86)	(-7.17)	(-7.01)	(-6.94)	(-6.71)	(-6.87)
ldist	-1.414***	-1.411***	-1.411***	-1.413***	-1.416***	-1.412***
	(-43.77)	(-43.97)	(-43.70)	(-44.14)	(-44.33)	(-44.46)
lrgdp	0.917***	0.920***	0.919***	0.918***	0.915***	0.916***
	(72.69)	(73.37)	(72.86)	(73.16)	(73.04)	(73.41)
lrgdppc	0.325***	0.272***	0.309***	0.327***	0.327***	0.311***

	(19.84)	(16.31)	(18.74)	(20.06)	(20.10)	(19.06)
1961b.year	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
1962.year	-0.0548	-0.0515	-0.0536	-0.0558	-0.0536	-0.0536
	(-0.93)	(-0.87)	(-0.91)	(-0.94)	(-0.91)	(-0.91)
1963.year	-0.0707	-0.0666	-0.0691	-0.0720	-0.0697	-0.0694
	(-1.20)	(-1.13)	(-1.18)	(-1.22)	(-1.18)	(-1.18)
1964.year	-0.139*	-0.135*	-0.136*	-0.141*	-0.138*	-0.137*
	(-2.42)	(-2.34)	(-2.37)	(-2.45)	(-2.39)	(-2.38)
1965.year	-0.222***	-0.222***	-0.220***	-0.225***	-0.224***	-0.225***
	(-3.95)	(-3.94)	(-3.91)	(-3.99)	(-3.98)	(-4.00)
1966.year	-0.247***	-0.245***	-0.248***	-0.252***	-0.248***	-0.254***
	(-4.52)	(-4.48)	(-4.52)	(-4.59)	(-4.52)	(-4.63)
1967.year	-0.340***	-0.338***	-0.339***	-0.344***	-0.339***	-0.344***
	(-6.23)	(-6.20)	(-6.23)	(-6.30)	(-6.21)	(-6.30)
1968.year	-0.475***	-0.471***	-0.474***	-0.480***	-0.476***	-0.480***
	(-8.70)	(-8.64)	(-8.68)	(-8.77)	(-8.72)	(-8.78)
1969.year	-0.745***	-0.744***	-0.744***	-0.750***	-0.748***	-0.752***
	(-14.07)	(-14.06)	(-14.05)	(-14.14)	(-14.11)	(-14.17)
1970.year	-0.827***	-0.828***	-0.826***	-0.833***	-0.829***	-0.834***
	(-15.84)	(-15.86)	(-15.82)	(-15.92)	(-15.86)	(-15.93)
1971.year	-0.927***	-0.930***	-0.925***	-0.933***	-0.933***	-0.936***
	(-17.94)	(-18.00)	(-17.90)	(-18.02)	(-18.04)	(-18.09)
1972.year	-0.890***	-0.894***	-0.888***	-0.896***	-0.897***	-0.900***
	(-17.20)	(-17.28)	(-17.15)	(-17.29)	(-17.33)	(-17.37)
1973.year	-0.797***	-0.799***	-0.795***	-0.803***	-0.803***	-0.807***
	(-15.43)	(-15.48)	(-15.40)	(-15.54)	(-15.54)	(-15.61)
1974.year	-0.628***	-0.626***	-0.625***	-0.635***	-0.634***	-0.639***
	(-12.21)	(-12.17)	(-12.16)	(-12.32)	(-12.33)	(-12.40)
1975.year	-0.656***	-0.658***	-0.653***	-0.663***	-0.664***	-0.668***
	(-12.82)	(-12.88)	(-12.77)	(-12.94)	(-12.98)	(-13.04)
1976.year	-0.742***	-0.741***	-0.738***	-0.750***	-0.749***	-0.752***
	(-14.45)	(-14.44)	(-14.38)	(-14.57)	(-14.57)	(-14.61)
1977.year	-0.720***	-0.717***	-0.715***	-0.727***	-0.728***	-0.730***
	(-14.04)	(-14.01)	(-13.95)	(-14.17)	(-14.20)	(-14.22)
1978.year	-0.826***	-0.825***	-0.819***	-0.832***	-0.836***	-0.836***
	(-16.00)	(-15.99)	(-15.88)	(-16.12)	(-16.19)	(-16.18)
1979.year	-0.830***	-0.830***	-0.825***	-0.838***	-0.841***	-0.842***
	(-16.10)	(-16.11)	(-15.99)	(-16.23)	(-16.29)	(-16.30)
1980.year	-0.863***	-0.865***	-0.855***	-0.869***	-0.874***	-0.872***
	(-16.80)	(-16.86)	(-16.64)	(-16.92)	(-17.01)	(-16.96)
1981.year	-0.971***	-0.980***	-0.965***	-0.978***	-0.984***	-0.984***
	(-19.00)	(-19.21)	(-18.90)	(-19.13)	(-19.24)	(-19.25)
1982.year	-1.126***	-1.147***	-1.122***	-1.133***	-1.140***	-1.143***
	(-22.04)	(-22.47)	(-21.97)	(-22.16)	(-22.28)	(-22.33)

1983.year	-1.241***	-1.267***	-1.240***	-1.249***	-1.256***	-1.262***
	(-24.27)	(-24.78)	(-24.25)	(-24.40)	(-24.53)	(-24.63)
1984.year	-1.328***	-1.352***	-1.327***	-1.336***	-1.343***	-1.350***
	(-26.00)	(-26.50)	(-25.99)	(-26.13)	(-26.27)	(-26.39)
1985.year	-1.401***	-1.426***	-1.402***	-1.409***	-1.415***	-1.424***
	(-27.42)	(-27.94)	(-27.45)	(-27.56)	(-27.67)	(-27.84)
1986.year	-1.443***	-1.470***	-1.445***	-1.452***	-1.459***	-1.469***
	(-28.18)	(-28.73)	(-28.22)	(-28.32)	(-28.45)	(-28.63)
1987.year	-1.467***	-1.494***	-1.468***	-1.475***	-1.482***	-1.492***
	(-28.63)	(-29.18)	(-28.66)	(-28.77)	(-28.90)	(-29.08)
1988.year	-1.430***	-1.460***	-1.429***	-1.439***	-1.447***	-1.453***
	(-28.02)	(-28.62)	(-28.00)	(-28.17)	(-28.31)	(-28.43)
1989.year	-1.454***	-1.489***	-1.455***	-1.463***	-1.471***	-1.480***
	(-28.45)	(-29.15)	(-28.47)	(-28.61)	(-28.75)	(-28.91)
1990.year	-1.469***	-1.506***	-1.471***	-1.479***	-1.485***	-1.496***
	(-28.66)	(-29.38)	(-28.69)	(-28.81)	(-28.94)	(-29.14)
1991.year	-1.452***	-1.492***	-1.452***	-1.461***	-1.469***	-1.477***
	(-28.31)	(-29.09)	(-28.31)	(-28.46)	(-28.60)	(-28.75)
1992.year	-1.454***	-1.498***	-1.458***	-1.464***	-1.470***	-1.484***
	(-28.39)	(-29.23)	(-28.47)	(-28.55)	(-28.68)	(-28.92)
1993.year	-1.572***	-1.618***	-1.579***	-1.582***	-1.587***	-1.605***
	(-30.61)	(-31.50)	(-30.76)	(-30.77)	(-30.90)	(-31.20)
1994.year	-1.522***	-1.568***	-1.529***	-1.532***	-1.538***	-1.556***
	(-29.70)	(-30.59)	(-29.84)	(-29.86)	(-30.00)	(-30.31)
1995.year	-1.473***	-1.518***	-1.481***	-1.484***	-1.490***	-1.508***
	(-28.54)	(-29.40)	(-28.70)	(-28.71)	(-28.85)	(-29.17)
1996.year	-1.478***	-1.529***	-1.485***	-1.489***	-1.495***	-1.511***
	(-28.57)	(-29.53)	(-28.70)	(-28.75)	(-28.89)	(-29.18)
1997.year	-1.485***	-1.544***	-1.495***	-1.496***	-1.502***	-1.522***
	(-28.50)	(-29.59)	(-28.68)	(-28.67)	(-28.81)	(-29.16)
pc12		0.0000546***				
		(15.24)				
cupc12		-0.0000922				
		(-1.69)				
pc_HH			0.166***			0.178***
			(7.35)			(7.76)
cupc_HH			-0.107			-0.155
			(-0.49)			(-0.71)
pc_HL				0.0152		0.0237
				(1.24)		(1.87)

cupc_HL				-0.585* (-2.36)		-0.523* (-2.06)
pc_LL					-0.0570*** (-4.03)	-0.0580*** (-4.04)
cupc_LL					0.256* (2.28)	0.214 (1.88)
_cons	-25.17*** (-58.44)	-24.47*** (-56.79)	-24.99*** (-57.97)	-25.22*** (-58.93)	-25.11*** (-58.71)	-24.92*** (-58.36)
N	114473	114473	114473	114473	114473	114473
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 8A
Time-Fixed and Entity-Fixed Effects Regression for All Private Credit Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.873*** (7.31)	0.922*** (7.49)	0.872*** (7.31)	0.945*** (7.65)	0.698*** (4.90)	0.784*** (5.22)
landl	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
island	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
border	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comlang	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comcol	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
comctry	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
colony	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
curcol	0.0840 (0.19)	0.0977 (0.22)	0.0728 (0.16)	0.0788 (0.17)	0.0845 (0.19)	0.0729 (0.16)
regional	0.548*** (9.01)	0.574*** (9.44)	0.548*** (9.00)	0.548*** (9.01)	0.547*** (8.98)	0.547*** (8.98)
lareap	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
ldist	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
lrgdp	0.428*** (12.98)	0.498*** (14.85)	0.451*** (13.59)	0.431*** (13.04)	0.428*** (12.90)	0.451*** (13.48)
lrgdppc	0.510*** (16.02)	0.405*** (12.25)	0.475*** (14.72)	0.507*** (15.90)	0.510*** (15.91)	0.475*** (14.63)
1961b.year	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
1962.year	-0.0196 (-0.33)	-0.0184 (-0.31)	-0.0189 (-0.32)	-0.0191 (-0.32)	-0.0195 (-0.33)	-0.0187 (-0.32)
1963.year	-0.00130 (-0.02)	-0.00228 (-0.04)	-0.00111 (-0.02)	-0.00111 (-0.02)	-0.00137 (-0.02)	-0.00117 (-0.02)

1964.year	-0.0216	-0.0256	-0.0214	-0.0212	-0.0217	-0.0214
	(-0.38)	(-0.44)	(-0.37)	(-0.37)	(-0.38)	(-0.37)
1965.year	-0.0723	-0.0810	-0.0732	-0.0716	-0.0726	-0.0735
	(-1.28)	(-1.44)	(-1.30)	(-1.27)	(-1.29)	(-1.30)
1966.year	-0.0867	-0.0954	-0.0897	-0.0842	-0.0866	-0.0893
	(-1.58)	(-1.73)	(-1.63)	(-1.53)	(-1.58)	(-1.62)
1967.year	-0.147**	-0.159**	-0.151**	-0.145**	-0.147**	-0.150**
	(-2.68)	(-2.90)	(-2.75)	(-2.64)	(-2.67)	(-2.73)
1968.year	-0.240***	-0.253***	-0.243***	-0.238***	-0.239***	-0.242***
	(-4.34)	(-4.58)	(-4.40)	(-4.30)	(-4.33)	(-4.38)
1969.year	-0.463***	-0.481***	-0.467***	-0.462***	-0.464***	-0.467***
	(-8.58)	(-8.90)	(-8.65)	(-8.55)	(-8.58)	(-8.65)
1970.year	-0.502***	-0.523***	-0.506***	-0.500***	-0.502***	-0.506***
	(-9.34)	(-9.74)	(-9.43)	(-9.31)	(-9.34)	(-9.42)
1971.year	-0.566***	-0.591***	-0.571***	-0.565***	-0.566***	-0.571***
	(-10.58)	(-11.05)	(-10.67)	(-10.56)	(-10.59)	(-10.68)
1972.year	-0.506***	-0.534***	-0.511***	-0.506***	-0.507***	-0.512***
	(-9.40)	(-9.91)	(-9.49)	(-9.38)	(-9.41)	(-9.50)
1973.year	-0.372***	-0.401***	-0.378***	-0.371***	-0.373***	-0.379***
	(-6.86)	(-7.39)	(-6.97)	(-6.84)	(-6.87)	(-6.98)
1974.year	-0.160**	-0.188***	-0.166**	-0.159**	-0.160**	-0.167**
	(-2.93)	(-3.44)	(-3.04)	(-2.91)	(-2.93)	(-3.05)
1975.year	-0.171**	-0.205***	-0.177**	-0.170**	-0.171**	-0.178**
	(-3.12)	(-3.74)	(-3.25)	(-3.11)	(-3.12)	(-3.25)
1976.year	-0.217***	-0.252***	-0.224***	-0.217***	-0.218***	-0.225***
	(-3.92)	(-4.54)	(-4.04)	(-3.91)	(-3.93)	(-4.05)
1977.year	-0.162**	-0.197***	-0.168**	-0.161**	-0.162**	-0.169**
	(-2.89)	(-3.53)	(-3.01)	(-2.89)	(-2.89)	(-3.01)
1978.year	-0.237***	-0.276***	-0.243***	-0.237***	-0.236***	-0.243***
	(-4.16)	(-4.85)	(-4.27)	(-4.17)	(-4.15)	(-4.27)
1979.year	-0.205***	-0.247***	-0.212***	-0.205***	-0.204***	-0.213***
	(-3.56)	(-4.30)	(-3.69)	(-3.57)	(-3.56)	(-3.70)
1980.year	-0.214***	-0.261***	-0.220***	-0.215***	-0.214***	-0.221***
	(-3.70)	(-4.51)	(-3.81)	(-3.72)	(-3.69)	(-3.82)
1981.year	-0.301***	-0.357***	-0.310***	-0.302***	-0.301***	-0.311***
	(-5.19)	(-6.12)	(-5.34)	(-5.20)	(-5.18)	(-5.35)
1982.year	-0.443***	-0.510***	-0.455***	-	-	-

				0.444***	0.443***	0.456***
	(-7.57)	(-8.68)	(-7.77)	(-7.59)	(-7.57)	(-7.78)
				-	-	-
1983.year	-0.541***	-0.614***	-0.555***	0.542***	0.541***	0.556***
	(-9.15)	(-10.33)	(-9.39)	(-9.16)	(-9.15)	(-9.40)
				-	-	-
1984.year	-0.603***	-0.678***	-0.619***	0.604***	0.603***	0.620***
	(-10.12)	(-11.31)	(-10.37)	(-10.13)	(-10.12)	(-10.39)
				-	-	-
1985.year	-0.657***	-0.735***	-0.675***	0.657***	0.657***	0.676***
	(-10.91)	(-12.14)	(-11.20)	(-10.91)	(-10.92)	(-11.21)
				-	-	-
1986.year	-0.670***	-0.751***	-0.689***	0.670***	0.670***	0.690***
	(-10.99)	(-12.25)	(-11.29)	(-10.99)	(-11.00)	(-11.31)
				-	-	-
1987.year	-0.663***	-0.747***	-0.682***	0.663***	0.663***	0.683***
	(-10.74)	(-12.03)	(-11.04)	(-10.75)	(-10.75)	(-11.06)
				-	-	-
1988.year	-0.598***	-0.686***	-0.615***	0.599***	0.598***	0.617***
	(-9.61)	(-10.95)	(-9.89)	(-9.63)	(-9.62)	(-9.91)
				-	-	-
1989.year	-0.595***	-0.690***	-0.616***	0.596***	0.596***	0.617***
	(-9.45)	(-10.87)	(-9.76)	(-9.46)	(-9.45)	(-9.78)
				-	-	-
1990.year	-0.586***	-0.684***	-0.607***	0.586***	0.586***	0.608***
	(-9.18)	(-10.63)	(-9.51)	(-9.19)	(-9.19)	(-9.52)
				-	-	-
1991.year	-0.560***	-0.663***	-0.581***	0.561***	0.560***	0.582***
	(-8.68)	(-10.19)	(-9.00)	(-8.70)	(-8.69)	(-9.02)
				-	-	-
1992.year	-0.540***	-0.649***	-0.566***	0.541***	0.541***	0.567***
	(-8.32)	(-9.89)	(-8.69)	(-8.32)	(-8.32)	(-8.71)
				-	-	-
1993.year	-0.634***	-0.747***	-0.663***	0.634***	0.635***	0.665***
	(-9.63)	(-11.22)	(-10.04)	(-9.63)	(-9.64)	(-10.06)
				-	-	-
1994.year	-0.567***	-0.682***	-0.596***	0.567***	0.568***	0.598***
	(-8.52)	(-10.15)	(-8.95)	(-8.53)	(-8.54)	(-8.97)
				-	-	-
1995.year	-0.479***	-0.596***	-0.510***	0.479***	0.480***	0.511***
	(-7.06)	(-8.69)	(-7.50)	(-7.06)	(-7.08)	(-7.52)
				-	-	-
1996.year	-0.462***	-0.585***	-0.492***	0.462***	0.463***	0.494***
	(-6.73)	(-8.44)	(-7.16)	(-6.74)	(-6.75)	(-7.18)
				-	-	-
1997.year	-0.458***	-0.591***	-0.492***	0.458***	0.459***	0.493***
	(-6.58)	(-8.37)	(-7.04)	(-6.58)	(-6.59)	(-7.06)

pc12		0.0000433***				
		(11.59)				
cupc12		-0.0000978				
		(-1.76)				
pc_HH			0.146***			0.145***
			(6.32)			(6.23)
cupc_HH			-0.102			-0.143
			(-0.47)			(-0.65)
pc_HL				-0.0146		-0.00287
				(-1.17)		(-0.22)
cupc_HL				-0.555*		-0.486
				(-2.22)		(-1.90)
pc_LL					-0.00238	-0.00576
					(-0.16)	(-0.39)
cupc_LL					0.254*	0.219
					(2.24)	(1.90)
_cons	-18.45***	-20.10***	-18.97***	-18.57***	-18.46***	-18.97***
	(-16.39)	(-17.72)	(-16.81)	(-16.44)	(-16.28)	(-16.66)
N	114473	114473	114473	114473	114473	114473
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 9A
Pooled OLS Regressions for All Liquid Liabilities Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	1.805*** (29.95)	1.856*** (24.66)	1.836*** (29.62)	1.876*** (29.89)	1.549*** (13.76)	1.922*** (11.99)
landl	-0.280*** (-20.95)	-0.296*** (-21.97)	-0.278*** (-20.82)	-0.314*** (-23.44)	-0.315*** (-23.44)	-0.330*** (-24.47)
island	0.0546*** (4.13)	0.0385** (2.88)	0.0569*** (4.30)	0.0625*** (4.74)	0.0525*** (3.98)	0.0590*** (4.47)
border	0.411*** (9.61)	0.405*** (9.45)	0.409*** (9.56)	0.433*** (10.14)	0.451*** (10.52)	0.451*** (10.54)
comlang	0.414*** (26.55)	0.412*** (26.45)	0.415*** (26.62)	0.435*** (27.88)	0.423*** (27.19)	0.436*** (27.95)
comcol	0.214*** (9.12)	0.196*** (8.32)	0.215*** (9.14)	0.203*** (8.64)	0.183*** (7.79)	0.185*** (7.86)
comctry	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
colony	1.176*** (23.35)	1.184*** (23.51)	1.178*** (23.37)	1.070*** (21.18)	1.126*** (22.35)	1.059*** (20.97)
curcol	1.897*** (3.36)	1.847** (3.27)	1.909*** (3.38)	2.079*** (3.69)	1.957*** (3.47)	2.073*** (3.68)
regional	0.377*** (7.38)	0.412*** (7.87)	0.397*** (7.68)	0.410*** (8.04)	0.413*** (7.98)	0.428*** (8.19)
lareap	-0.0580*** (-19.09)	-0.0493*** (-15.38)	-0.0600*** (-19.39)	-0.0500*** (-16.35)	-0.0452*** (-14.52)	-0.0427*** (-13.48)
ldist	-1.254*** (-138.76)	-1.249*** (-137.76)	-1.256*** (-138.70)	-1.267*** (-140.23)	-1.257*** (-139.16)	-1.265*** (-139.76)
lrgdp	0.912*** (243.30)	0.901*** (228.08)	0.914*** (239.74)	0.902*** (239.05)	0.897*** (234.70)	0.893*** (228.82)
lrgdppc	0.604*** (104.78)	0.592*** (99.92)	0.607*** (104.05)	0.606*** (105.20)	0.573*** (96.06)	0.585*** (96.57)

ll12		0.0000292*** (8.85)				
cull12		-0.0000541 (-1.28)				
ll_HH			-0.0753** (-3.17)			0.0395 (1.59)
cull_HH			-0.425 (-1.82)			-0.635* (-2.34)
ll_HL				0.294*** (22.21)		0.233*** (15.24)
cull_HL				-0.789*** (-3.65)		-0.819** (-3.13)
ll_LL					-0.306*** (-19.57)	-0.190*** (-10.99)
cull_LL					0.402** (3.07)	0.0220 (0.13)
_cons	-32.12*** (-230.89)	-31.70*** (-215.61)	-32.20*** (-226.66)	-31.83*** (-227.88)	-31.09*** (-209.33)	-31.20*** (-206.07)
N	115020	115020	115020	115020	115020	115020
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 10A
Fixed Effect Regressions for All Liquid Liabilities Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.989***	1.021***	0.989***	1.078***	0.774***	0.923***
	(8.07)	(7.52)	(8.07)	(8.25)	(4.53)	(4.72)
landl	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
island	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
border	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comlang	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comcol	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
curcol	0.101	0.100	0.108	0.105	0.102	0.117
	(0.22)	(0.22)	(0.24)	(0.23)	(0.22)	(0.26)
regional	0.506***	0.506***	0.503***	0.509***	0.504***	0.506***
	(8.57)	(8.56)	(8.50)	(8.60)	(8.53)	(8.54)
lareap	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
ldist	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
lrgdp	0.204***	0.204***	0.204***	0.201***	0.220***	0.218***
	(13.59)	(13.38)	(13.58)	(13.32)	(14.02)	(13.81)
lrgdppc	0.674***	0.675***	0.671***	0.676***	0.659***	0.659***
	(28.46)	(28.39)	(28.17)	(28.42)	(27.42)	(27.24)
ll12		-0.000000541				
		(-0.13)				
cull12		-0.0000374				
		(-0.55)				

ll_HH			0.0258 (1.26)			0.0312 (1.49)
cull_HH			-0.123 (-0.69)			-0.172 (-0.95)
ll_HL				0.0145 (1.20)		0.0269* (2.15)
cull_HL				-0.453* (-2.02)		-0.378 (-1.55)
ll_LL					0.0501*** (3.45)	0.0561*** (3.79)
cull_LL					0.309 (1.85)	0.204 (1.14)
_cons	-10.74*** (-26.83)	-10.76*** (-25.03)	-10.69*** (-26.56)	- 10.67*** (-26.40)	-11.31*** (-26.15)	-11.19*** (-25.64)
N	115020	115020	115020	115020	115020	115020
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 11A
Time-Fixed Effects Regressions for all Liquid Liabilities Data

	(1) ltrade	(2) ltrade	(3) ltrade	(4) ltrade	(5) ltrade	(6) ltrade
custrict	0.901*** (8.25)	0.913*** (7.46)	0.902*** (8.26)	0.973*** (8.44)	0.778*** (4.85)	0.952*** (5.22)
landl	-0.372*** (-8.33)	-0.391*** (-8.76)	-0.373*** (-8.37)	-0.372*** (-8.37)	-0.371*** (-8.37)	-0.374*** (-8.46)
island	0.0229 (0.43)	0.0191 (0.36)	0.0247 (0.47)	0.0230 (0.44)	0.0203 (0.39)	0.0222 (0.43)
border	0.340* (2.04)	0.329* (1.97)	0.334* (2.00)	0.340* (2.05)	0.343* (2.07)	0.339* (2.05)
comlang	0.370*** (5.72)	0.366*** (5.66)	0.368*** (5.69)	0.370*** (5.74)	0.369*** (5.73)	0.366*** (5.71)
comcol	0.108 (1.27)	0.0932 (1.10)	0.104 (1.23)	0.106 (1.26)	0.110 (1.30)	0.104 (1.24)
comctry	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)	0 (.)
colony	1.753*** (8.77)	1.755*** (8.78)	1.744*** (8.73)	1.746*** (8.77)	1.748*** (8.80)	1.730*** (8.74)
curcol	-0.000874 (-0.00)	0.0529 (0.12)	0.0229 (0.05)	0.00485 (0.01)	-0.00272 (-0.01)	0.0323 (0.07)
regional	0.720*** (12.57)	0.721*** (12.60)	0.709*** (12.37)	0.725*** (12.65)	0.721*** (12.59)	0.716*** (12.48)
lareap	- 0.0798*** (-7.31)	-0.0728*** (-6.66)	-0.0803*** (-7.36)	- 0.0791*** (-7.27)	- 0.0782*** (-7.19)	- 0.0776*** (-7.15)
ldist	-1.406*** (-42.94)	-1.403*** (-42.85)	-1.405*** (-42.95)	-1.406*** (-43.11)	-1.406*** (-43.21)	-1.404*** (-43.29)
lrgdp	0.931*** (73.52)	0.928*** (73.28)	0.933*** (73.70)	0.930*** (73.62)	0.929*** (73.41)	0.930*** (73.65)

	0.304***	0.276***	0.293***	0.306***	0.305***	0.296***
lrgdppc	(18.71)	(16.64)	(17.89)	(18.86)	(18.87)	(18.13)
1961b.year	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
1962.year	-0.0616	-0.0621	-0.0610	-0.0617	-0.0615	-0.0609
	(-1.08)	(-1.09)	(-1.07)	(-1.08)	(-1.08)	(-1.07)
1963.year	-0.0965	-0.0982	-0.0962	-0.0980	-0.0963	-0.0977
	(-1.71)	(-1.75)	(-1.71)	(-1.74)	(-1.71)	(-1.73)
1964.year	-0.138*	-0.137*	-0.138*	-0.140*	-0.138*	-0.140*
	(-2.49)	(-2.47)	(-2.49)	(-2.52)	(-2.48)	(-2.52)
1965.year	-0.216***	-0.215***	-0.215***	-0.217***	-0.215***	-0.216***
	(-3.98)	(-3.96)	(-3.96)	(-4.00)	(-3.97)	(-3.98)
1966.year	-0.235***	-0.234***	-0.234***	-0.237***	-0.235***	-0.236***
	(-4.49)	(-4.45)	(-4.47)	(-4.52)	(-4.49)	(-4.50)
1967.year	-0.317***	-0.316***	-0.316***	-0.319***	-0.319***	-0.319***
	(-6.12)	(-6.08)	(-6.09)	(-6.15)	(-6.14)	(-6.15)
1968.year	-0.452***	-0.449***	-0.452***	-0.455***	-0.453***	-0.457***
	(-8.69)	(-8.64)	(-8.70)	(-8.74)	(-8.71)	(-8.79)
1969.year	-0.722***	-0.719***	-0.720***	-0.723***	-0.723***	-0.722***
	(-14.38)	(-14.33)	(-14.34)	(-14.40)	(-14.39)	(-14.38)
1970.year	-0.802***	-0.800***	-0.799***	-0.802***	-0.804***	-0.800***
	(-16.19)	(-16.15)	(-16.14)	(-16.18)	(-16.23)	(-16.13)
1971.year	-0.902***	-0.901***	-0.899***	-0.902***	-0.904***	-0.901***
	(-18.40)	(-18.40)	(-18.34)	(-18.40)	(-18.44)	(-18.37)
1972.year	-0.876***	-0.877***	-0.874***	-0.879***	-0.878***	-0.879***
	(-17.89)	(-17.91)	(-17.86)	(-17.94)	(-17.93)	(-17.93)
1973.year	-0.763***	-0.762***	-0.761***	-0.767***	-0.765***	-0.766***
	(-15.60)	(-15.57)	(-15.56)	(-15.66)	(-15.62)	(-15.65)
1974.year	-0.586***	-0.579***	-0.583***	-0.589***	-0.586***	-0.586***
	(-12.01)	(-11.87)	(-11.95)	(-12.06)	(-12.02)	(-12.01)
1975.year	-0.612***	-0.610***	-0.609***	-0.615***	-0.614***	-0.614***
	(-12.58)	(-12.54)	(-12.52)	(-12.65)	(-12.62)	(-12.62)
1976.year	-0.684***	-0.680***	-0.681***	-0.688***	-0.686***	-0.687***
	(-14.00)	(-13.92)	(-13.94)	(-14.07)	(-14.04)	(-14.04)
1977.year	-0.667***	-0.665***	-0.664***	-0.671***	-0.669***	-0.671***
	(-13.64)	(-13.60)	(-13.58)	(-13.72)	(-13.69)	(-13.71)
1978.year	-0.779***	-0.779***	-0.776***	-0.783***	-0.784***	-0.782***
	(-15.86)	(-15.84)	(-15.78)	(-15.92)	(-15.94)	(-15.91)
1979.year	-0.792***	-0.790***	-0.789***	-0.797***	-0.796***	-0.797***
	(-16.12)	(-16.08)	(-16.06)	(-16.21)	(-16.19)	(-16.21)
1980.year	-0.808***	-0.807***	-0.806***	-0.813***	-0.812***	-0.815***
	(-16.48)	(-16.45)	(-16.44)	(-16.58)	(-16.55)	(-16.61)
1981.year	-0.911***	-0.915***	-0.910***	-0.916***	-0.916***	-0.919***
	(-18.66)	(-18.73)	(-18.62)	(-18.75)	(-18.75)	(-18.80)

1982.year	-1.067***	-1.078***	-1.066***	-1.071***	-1.073***	-1.075***
	(-21.84)	(-22.05)	(-21.81)	(-21.91)	(-21.95)	(-21.98)
1983.year	-1.178***	-1.193***	-1.178***	-1.182***	-1.187***	-1.188***
	(-24.09)	(-24.39)	(-24.08)	(-24.16)	(-24.23)	(-24.26)
1984.year	-1.261***	-1.276***	-1.263***	-1.265***	-1.269***	-1.274***
	(-25.78)	(-26.08)	(-25.81)	(-25.86)	(-25.91)	(-26.00)
1985.year	-1.329***	-1.348***	-1.332***	-1.335***	-1.336***	-1.344***
	(-27.17)	(-27.52)	(-27.22)	(-27.27)	(-27.29)	(-27.45)
1986.year	-1.383***	-1.405***	-1.385***	-1.388***	-1.390***	-1.398***
	(-28.22)	(-28.65)	(-28.27)	(-28.32)	(-28.35)	(-28.50)
1987.year	-1.406***	-1.429***	-1.409***	-1.411***	-1.414***	-1.423***
	(-28.70)	(-29.14)	(-28.77)	(-28.81)	(-28.84)	(-29.02)
1988.year	-1.352***	-1.373***	-1.355***	-1.358***	-1.359***	-1.369***
	(-27.67)	(-28.08)	(-27.75)	(-27.79)	(-27.81)	(-28.00)
1989.year	-1.387***	-1.410***	-1.392***	-1.394***	-1.395***	-1.407***
	(-28.36)	(-28.79)	(-28.46)	(-28.48)	(-28.50)	(-28.73)
1990.year	-1.409***	-1.430***	-1.412***	-1.415***	-1.416***	-1.426***
	(-28.72)	(-29.12)	(-28.79)	(-28.84)	(-28.86)	(-29.05)
1991.year	-1.406***	-1.427***	-1.411***	-1.413***	-1.414***	-1.426***
	(-28.65)	(-29.06)	(-28.76)	(-28.78)	(-28.80)	(-29.03)
1992.year	-1.404***	-1.429***	-1.410***	-1.410***	-1.413***	-1.425***
	(-28.67)	(-29.14)	(-28.79)	(-28.79)	(-28.83)	(-29.06)
1993.year	-1.505***	-1.531***	-1.512***	-1.512***	-1.515***	-1.527***
	(-30.60)	(-31.07)	(-30.73)	(-30.72)	(-30.76)	(-31.00)
1994.year	-1.464***	-1.488***	-1.470***	-1.470***	-1.473***	-1.486***
	(-29.83)	(-30.29)	(-29.96)	(-29.95)	(-29.99)	(-30.24)
1995.year	-1.413***	-1.437***	-1.419***	-1.420***	-1.422***	-1.434***
	(-28.56)	(-29.00)	(-28.68)	(-28.69)	(-28.72)	(-28.96)
1996.year	-1.416***	-1.441***	-1.421***	-1.422***	-1.425***	-1.435***
	(-28.60)	(-29.07)	(-28.70)	(-28.72)	(-28.76)	(-28.97)
1997.year	-1.423***	-1.453***	-1.428***	-1.429***	-1.432***	-1.443***
	(-28.51)	(-29.05)	(-28.62)	(-28.63)	(-28.68)	(-28.89)
ll12		0.0000339***				
		(8.55)				
cull12		-0.0000227				
		(-0.35)				
ll_HH			0.102***			0.117***
			(5.06)			(5.65)
cull_HH			-0.249			-0.308
			(-1.42)			(-1.72)

ll_HL				0.0272*		0.0357**
				(2.30)		(2.89)
cull_HL				-0.433*		-0.465
				(-1.97)		(-1.94)
ll_LL					-0.0319*	-0.0267
					(-2.25)	(-1.83)
cull_LL					0.170	0.0362
					(1.05)	(0.21)
_cons	-25.50***	-25.13***	-25.42***	-25.53***	-25.46***	-25.39***
	(-58.65)	(-57.54)	(-58.47)	(-58.92)	(-58.63)	(-58.58)
N	115020	115020	115020	115020	115020	115020
t statistics in parentheses	* p<0.05	** p<0.01	*** p<0.001			

Table 12A
Time-Fixed and Entity-Fixed Effects for all Liquid Liabilities Data

	1	2	3	4	5	6
	ltrade	ltrade	ltrade	ltrade	ltrade	ltrade
custrict	0.928***	0.962***	0.928***	1.025***	0.777***	0.962***
	(7.62)	(7.13)	(7.62)	(7.89)	(4.58)	(4.95)
landl	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
island	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
border	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comlang	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comcol	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
comctry	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
colony	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
curcol	0.106	0.143	0.123	0.106	0.106	0.126
	(0.23)	(0.32)	(0.27)	(0.24)	(0.24)	(0.28)
regional	0.599***	0.605***	0.595***	0.600***	0.598***	0.596***
	(10.06)	(10.14)	(9.98)	(10.07)	(10.03)	(10.00)
lareap	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
ldist	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
lrgdp	0.489***	0.508***	0.504***	0.489***	0.491***	0.505***
	(15.11)	(15.61)	(15.45)	(15.08)	(15.05)	(15.35)
lrgdppc	0.454***	0.416***	0.432***	0.453***	0.452***	0.431***
	(14.53)	(13.00)	(13.58)	(14.46)	(14.35)	(13.45)
1961b.year	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)
1962.year	-0.0215	-0.0229	-0.0215	-0.0215	-0.0216	-0.0215
	(-0.38)	(-0.40)	(-0.38)	(-0.38)	(-0.38)	(-0.38)
1963.year	-0.0259	-0.0290	-0.0266	-0.0261	-0.0262	-0.0274
	(-0.46)	(-0.52)	(-0.47)	(-0.46)	(-0.47)	(-0.49)
1964.year	-0.0259	-0.0280	-0.0271	-0.0259	-0.0261	-0.0280
	(-0.46)	(-0.50)	(-0.49)	(-0.47)	(-0.47)	(-0.50)

1965.year	-0.0729	-0.0757	-0.0738	-0.0729	-0.0733	-0.0745
	(-1.34)	(-1.39)	(-1.36)	(-1.34)	(-1.35)	(-1.37)
1966.year	-0.0820	-0.0845	-0.0831	-0.0818	-0.0821	-0.0835
	(-1.56)	(-1.60)	(-1.58)	(-1.55)	(-1.56)	(-1.59)
1967.year	-0.138**	-0.141**	-0.139**	-0.137**	-0.137**	-0.139**
	(-2.63)	(-2.69)	(-2.66)	(-2.62)	(-2.62)	(-2.65)
1968.year	-0.232***	-0.235***	-0.235***	-0.231***	-0.231***	-0.235***
	(-4.40)	(-4.47)	(-4.46)	(-4.38)	(-4.39)	(-4.46)
1969.year	-0.461***	-0.466***	-0.463***	-0.460***	-0.461***	-0.462***
	(-9.01)	(-9.09)	(-9.04)	(-9.00)	(-9.00)	(-9.03)
1970.year	-0.500***	-0.506***	-0.502***	-0.499***	-0.500***	-0.500***
	(-9.82)	(-9.93)	(-9.85)	(-9.80)	(-9.81)	(-9.82)
1971.year	-0.567***	-0.575***	-0.569***	-0.567***	-0.567***	-0.568***
	(-11.17)	(-11.33)	(-11.21)	(-11.16)	(-11.17)	(-11.19)
1972.year	-0.521***	-0.530***	-0.524***	-0.521***	-0.521***	-0.524***
	(-10.23)	(-10.41)	(-10.29)	(-10.22)	(-10.23)	(-10.29)
1973.year	-0.370***	-0.379***	-0.374***	-0.370***	-0.370***	-0.374***
	(-7.20)	(-7.37)	(-7.27)	(-7.20)	(-7.20)	(-7.28)
1974.year	-0.150**	-0.156**	-0.153**	-0.150**	-0.151**	-0.154**
	(-2.90)	(-3.02)	(-2.96)	(-2.89)	(-2.91)	(-2.96)
1975.year	-0.160**	-0.170**	-0.163**	-0.159**	-0.160**	-0.164**
	(-3.08)	(-3.26)	(-3.14)	(-3.07)	(-3.08)	(-3.15)
1976.year	-0.195***	-0.205***	-0.199***	-0.195***	-0.196***	-0.200***
	(-3.70)	(-3.88)	(-3.77)	(-3.69)	(-3.70)	(-3.78)
1977.year	-0.146**	-0.158**	-0.151**	-0.146**	-0.146**	-0.151**
	(-2.74)	(-2.96)	(-2.82)	(-2.73)	(-2.74)	(-2.83)
1978.year	-0.227***	-0.241***	-0.231***	-0.226***	-0.227***	-0.231***
	(-4.18)	(-4.43)	(-4.26)	(-4.16)	(-4.18)	(-4.25)
1979.year	-0.205***	-0.219***	-0.211***	-0.205***	-0.206***	-0.211***
	(-3.74)	(-3.99)	(-3.84)	(-3.73)	(-3.74)	(-3.84)
1980.year	-0.201***	-0.216***	-0.208***	-0.201***	-0.201***	-0.209***
	(-3.64)	(-3.90)	(-3.76)	(-3.63)	(-3.64)	(-3.77)
1981.year	-0.285***	-0.304***	-0.293***	-0.285***	-0.285***	-0.293***
	(-5.12)	(-5.45)	(-5.25)	(-5.11)	(-5.12)	(-5.25)
1982.year	-0.429***	-0.454***	-0.438***	-0.429***	-0.429***	-0.437***
	(-7.65)	(-8.06)	(-7.79)	(-7.64)	(-7.63)	(-7.77)
1983.year	-0.525***	-0.553***	-0.534***	-0.524***	-0.523***	-0.533***
	(-9.25)	(-9.72)	(-9.41)	(-9.24)	(-9.23)	(-9.38)
1984.year	-0.586***	-0.615***	-0.597***	-0.585***	-0.585***	-0.596***
	(-10.23)	(-10.70)	(-10.41)	(-10.22)	(-10.21)	(-10.40)
1985.year	-0.637***	-0.670***	-0.650***	-0.637***	-0.636***	-0.650***
	(-11.02)	(-11.52)	(-11.22)	(-11.01)	(-11.00)	(-11.22)

1986.year	-0.661***	-0.697***	-0.674***	-0.661***	-0.660***	-0.674***
	(-11.29)	(-11.83)	(-11.49)	(-11.29)	(-11.28)	(-11.49)
1987.year	-0.654***	-0.692***	-0.668***	-0.654***	-0.653***	-0.668***
	(-11.05)	(-11.61)	(-11.27)	(-11.05)	(-11.04)	(-11.27)
1988.year	-0.578***	-0.615***	-0.593***	-0.578***	-0.578***	-0.594***
	(-9.68)	(-10.23)	(-9.90)	(-9.67)	(-9.67)	(-9.91)
1989.year	-0.587***	-0.626***	-0.604***	-0.587***	-0.587***	-0.605***
	(-9.70)	(-10.27)	(-9.94)	(-9.70)	(-9.70)	(-9.96)
1990.year	-0.585***	-0.623***	-0.600***	-0.584***	-0.585***	-0.601***
	(-9.54)	(-10.10)	(-9.76)	(-9.53)	(-9.54)	(-9.78)
1991.year	-0.572***	-0.611***	-0.589***	-0.572***	-0.572***	-0.590***
	(-9.22)	(-9.79)	(-9.48)	(-9.22)	(-9.22)	(-9.49)
1992.year	-0.553***	-0.596***	-0.571***	-0.553***	-0.553***	-0.572***
	(-8.85)	(-9.46)	(-9.12)	(-8.85)	(-8.85)	(-9.12)
1993.year	-0.628***	-0.672***	-0.647***	-0.628***	-0.628***	-0.648***
	(-9.90)	(-10.51)	(-10.17)	(-9.90)	(-9.90)	(-10.17)
1994.year	-0.573***	-0.617***	-0.592***	-0.572***	-0.572***	-0.593***
	(-8.95)	(-9.56)	(-9.22)	(-8.94)	(-8.94)	(-9.23)
1995.year	-0.488***	-0.532***	-0.508***	-0.488***	-0.488***	-0.508***
	(-7.47)	(-8.09)	(-7.75)	(-7.47)	(-7.47)	(-7.76)
1996.year	-0.474***	-0.520***	-0.493***	-0.474***	-0.474***	-0.493***
	(-7.18)	(-7.82)	(-7.45)	(-7.18)	(-7.19)	(-7.46)
1997.year	-0.469***	-0.518***	-0.489***	-0.469***	-0.469***	-0.489***
	(-7.00)	(-7.66)	(-7.28)	(-7.00)	(-7.00)	(-7.28)
ll12		0.0000235***				
		(5.44)				
cull12		-0.0000466				
		(-0.68)				
ll_HH			0.0774***			0.0806***
			(3.74)			(3.83)
cull_HH			-0.195			-0.250
			(-1.10)			(-1.40)
ll_HL				0.00162		0.0114
				(0.13)		(0.91)
cull_HL				-0.479*		-0.476*
				(-2.14)		(-1.96)
ll_LL					0.00699	0.00792

					(0.48)	(0.53)
cull_LL					0.215	0.0864
					(1.29)	(0.48)
_cons	-20.45***	-20.78***	-20.82***	-20.45***	-20.53***	-20.86***
	(-18.50)	(-18.77)	(-18.75)	(-18.46)	(-18.39)	(-18.61)
N	115020	115020	115020	115020	115020	115020
t statistics in parentheses	* p<0.05	** p<.01	*** p<.001			