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Abstract

The dominance of English common-law countries in prospects for financial development in the legal-origins debate has been debunked by recent findings. Using exchange rate regimes and economic/monetary integration oriented hypotheses, this paper proposes an "inflation uncertainty theory" in providing theoretical justification and empirical validity as to why French civil-law countries have higher levels of financial allocation efficiency. Inflation uncertainty, typical of floating exchange rate regimes accounts for the allocation inefficiency of financial intermediary institutions in English common-law countries. As a policy implication, results support the benefits of fixed exchange rate regimes in financial intermediary allocation efficiency.

JEL Classification: D61;G20; K00; P50 ; R10

Keywords: Banking; allocation efficiency; exchange rate; inflation; economic integration

1. Introduction

Contrary to mainstream literature (Mundell, 1972; La Porta et al., 1998; Beck et al., 2003), recent findings have partially rejected the dominance of English common-law countries in prospects for financial development (Asongu, 2011). The overwhelming edge of French civil-law countries in financial intermediary allocation efficiency has reignited the legal-origins debate in the law-finance nexus. This paper cuts adrift the mainstream cross-country legal-origins approach and uses regional-legal origins to provide theoretical justification and empirical validity as to "*why*" French civil-law countries exhibit higher levels of financial allocation efficiency. It is worth noting that recent findings have stopped at "*if*" French legal systems provide for conditions that enhance financial intermediary allocation efficiency. The issue of "why" has remained elusive hitherto, which is the concern this work seeks to address. For the purpose of clarity and logical presentation of the paper, literature on the law-finance nexus could be clubbed into the following strands.

The first strand entails a growing body of work which suggests that cross-country differences in legal-origin explain cross-country differences in financial development. La Porta et al., (1998): hence LLSV (1998) pioneered this strand and ever since many authors have taken to them in the assertion that English common-law countries provide for a legal atmosphere that fosters conditions for financial development than their French civil-law counterparts. They postulate that countries with common-law traditions (French civil-law legacies) express the strongest (weakest) legal protection to shareholders and creditors (LLSV, 1998, 2000). The margin English legal origin countries exert over countries with French civil-law origin has been generalized and extended to many other aspects of management and government: more informative accounting standards(LLSV,1998) , better institutions with less corrupt governments

(LLSV,1999) and more efficient courts(Djankov et al., 2003). While this strand has been focused on elucidating "*if*" legal origin matters in financial development, the issue of "*why*" legal origin matters remained unaccounted for until Beck et al.(2003) assessed some theories to address it.

In the second strand, Beck et al.(2003) account for "why" legal origin matters in finance by empirically assessing two channel-based theories. The political channel underlines the importance of priorities legal traditions attribute to the rights of individual investors vis-à-vis the state. It follows that championing of investors rights should induce favorable conditions for financial development. The adaptability channel postulates that legal traditions differ in their capacity to adapt to changing and evolving business circumstances. This implies countries in which legal systems provide for adjustments in relation to changing and evolving circumstances should have a higher propensity to financial development. Thus, this strand solves the "*why*" puzzle in asserting that legal origin matters in financial growth because traditionally, legal origins differ in their ability to adapt and adjust to changing and evolving economic conditions.

In the third strand we find literature boosting the nexus that financial development significantly contributes to a country's overall economic growth (McKinnon, 1973). This optimism is shared and broadened empirically at the country level (King & Levine, 1993; Levine & Zervos, 1998; Allen et al., 2005), as well as at industry and firm levels (Jayaratne & Strahan, 1996; Rajan & Zingales, 1998).

The fourth strand addresses the law-finance-growth relationship. It theoretically and empirically provides evidence of the link among law, finance and economic growth at firm, industry and country levels (Demirguc-Kunt & Maksimovic, 1998; Beck & Levine, 2002).

The fifth strand which is for the most part dedicated to sub-Saharan African countries was pioneered by the Mundell(1972) conjecture, which emphasized that Anglophone countries

shaped by British activism and openness(to experiment) would naturally experience higher levels of financial development that their Francophone neighbors(powered by French reliance on monetary stability and automaticity)[1]. Recent literature on the African continent has either wholly (Agbor, 2011) or partially (Asongu, 2011) confirmed the edge of English common-law countries in growth and finance prospects respectively[2]. Historically it should be noted that the partition of sub-Saharan Africa into French and British spheres in the 19th century resulted in the implementation of two distinct colonial policies[3].

The unique contribution of this paper to the literature is to explain "why" French civil-law countries experience higher levels of financial intermediary allocation efficiency than English common-law countries. The rest of the paper is organized in the following manner. Section 2 discusses the links among financial efficiency, inflation and the law-finance theory, and presents resulting testable hypotheses. Data sources and methodology are discussed and outlined in Section 3 respectively. Empirical analyses and discussion of results are reported in Section 4, followed by a conclusion in Section 5.

[1] "*The French and English traditions in monetary theory and history have been different… The French tradition has stressed the passive nature of monetary policy and the importance of exchange stability with convertibility; stability has been achieved at the expense of institutional development and monetary experience. The British countries by opting for monetary independence have sacrificed stability, but gained monetary experience and better developed monetary institutions*."(Mundell, 1972; pp.42-43).

[2] While Agbor (2011) assesses how legal-origin affects economic performance, Asongu (2011) proposes four theories in assessing why legal-origin matters in growth and welfare. Both studies are focused on the sub-Saharan part of the African continent.

[3] The British and French implemented two distinct colonial policies. While the French imposed a highly centralized bureaucratic system that clearly underlined empire-building, the British on their part administered pragmatic decentralized and flexible policies. Economic and business ambitions dominated British colonial activities who sought to transform their colonies into commercially viable trading countries through the indirect-rule: producing raw material and consuming British manufactures. The French on their part championed imperial ambitions through the policy of assimilation.

2. Financial efficiency, inflation and law-finance –theory

2.1 Inflation and regional-legal origin

We postulate that inflation is inherently associated with common-law countries than civil-law countries. This is because countries with English legal tradition are inherently opened (to capital and trade) and competitive. Trade (exchange rate) reflects inflation especially in floating exchange rate regimes. It follows that inflation should be higher in floating (English common-law) rate regimes than in fixed (French civil-law) exchange rate regimes (Mundell, 1972)[4].

2.2 Inflation, uncertainty and financial allocation efficiency

2.2.1 Inflation, noise and uncertainty

Quite often, inflation introduces noise into the price system and this noise leads to decisions that, ex-post are mistakes that would not have occurred in the absence of inflationary noise. The famous "island" model of Lucas (1972) elucidates this hypothesis. A condition for inflation to introduce noise into the system is that inflation must carry with it some uncertainty about static and/or intertemporal relative prices. Evidence that inflation and uncertainty travel together has been provided by many authors (Okun, 1971; Logue & Willet, 1976; Foster, 1978; Engle, 1983; Evans & Wachtel, 1993). However these studies may disagree in some details, there does appear to be a consensus that inflation and inflation uncertainty move hand in glove.

[4] "*The French and English traditions in monetary theory and history have been different… The French tradition has stressed the passive nature of monetary policy and the importance of exchange stability with convertibility; stability has been achieved at the expense of institutional development and monetary experience. The British countries by opting for monetary independence have sacrificed stability, but gained monetary experience and better developed monetary institutions*."(Mundell, 1972; pp.42-43).

2.2.2 Why inflation matters in financial allocation efficiency?

As we must have earlier observed, inflation injects noise into the smooth functioning of the price system and thus influence's decisions of banks and other financial institutions. This added noise comes with mistakes in decision making that would not have been made without inflation-induced uncertainty. Banks end up holding too much of mobilized funds. Inflation therefore leads to a different pattern (ratio) of bank deposits on bank credit (allocation efficiency). In substance, inflation is like a distortionary tax that causes a reduction in the bank's allocation efficiency. Thus the allocative cost caused by inflationary noise quantitatively affects the ability of a bank to lend mobilized funds because the lending price depends on perceptions of tomorrow's value of money. Since inflation adds noise to the lending price system and therefore affects perceptions of the time value of money, the argument for misallocation of mobilized funds holds grounds as bank resources maybe shifted to inefficient ends. As point out by Summers (1991) inflation and its accompanying uncertainty leads to resources being devoted to "dealing with" inflation rather than the fundamental issues the banks "really care about"(allocation of credit to economic agents). To put this in perspective, with inflation and corresponding uncertainty financial institutions tend to employ more inflation forecasters and indexation specialists which diverts some proportion of mobilized funds. Indeed financial institutions in economies associated with high levels of inflation and uncertainty tend to see more recipients of cheques lobbying for faster cheque-clearing services. This constraint requires banks to retain a higher proportion of deposits (in a bid to meet-up with the uncertainty in demand for liquidity) and this affects their allocation efficiency (bank credit on bank deposits). More so bankers(aware inflation will erode the time value of money) are slow to lend-out mobilized funds because of uncertainty in the increase of interest rate to compensate(associate)

for(to) the inflationary noise It follows that inflation affects financial allocation efficiency through misallocation of resources: on the one hand more mobilized funds (deposits) are used to fight inflation and on the other hand a greater chunk of mobilized funds is retained by banks to assuage the uncertainty of bank-run.

2.3 Testing the "inflation uncertainty theory"

In order to assess the "inflation uncertainty theory" we shall examining two testable hypotheses.

H1: Inflation is higher in common-law countries due to floating exchange rate regimes, in comparison to French civil-law countries with fixed exchange rate regimes.

First and foremost, we shall have to cut adrift the legal origins debate that is based on colonial legacy at cross-country levels. A more convenient approach is the adoption of economic/monetary regional-legal origins. Should we limit our empirical framework to cross-country level analysis, the basis for exchange rate regimes (on which the concept of inflation is founded; Section 2.1) will not be accounted for. Most French civil-law countries are associated with monetary regions in which financial discipline and inflation are dictated and controlled respectively by regional central banks.

Hypothesis 1 will be further elucidated by means of comparative statistics to be outlined in Section 3.1.5.

H2: Inflation reduces financial intermediary allocation efficiency.

Testing this hypothesis we entail four steps:

-Firstly, we confirm that inflation is detrimental to banking system allocation efficiency (and robustly financial system allocation efficiency), conditional on other exogenous determinants of financial intermediary allocation efficiency;

-Secondly, we assess if regional-legal origins explain regulation quality and the rule of law (which are used as our endogenous explaining control variables at the second-stage of the TSLS approach);

-Thirdly, we show that regional-legal origins (monetary/economic or both) which determine exchange rate regimes are exogenous to inflation and financial intermediary efficiency, (conditional on other potential determinants of inflation and financial efficiency);

-Lastly, we examine if regional-legal origins explain banking system efficiency (and robustly financial system efficiency) beyond their ability to explain cross-country (cross-regional) variations in inflation; conditional on other potential exogenous determinants of financial intermediary efficiency (rule of law and regulation quality)[5].

2.4 The concept of financial intermediary efficiency

Here we neither refer to the profitability-oriented concept of financial efficiency nor to the production efficiency of decision making units in the financial sector (through Data Envelopment Analysis: DEA). What we seek to address is the ability of banks to effectively meet their fundamental role of transforming mobilized deposits into credit for economic operators.

3. Data and Methodology

3.1 Data

Our data is obtained from African Development Indicators (ADI) of the Work Bank (WB) and the Financial Development and Structure Database (FDSD). Due to limitations in time

[5] As we have pointed-out in the second-step, other potential determinants of financial efficiency must have theoretical basis and empirical validity. Thus, the instruments (regional legal-origin) must explain the rule of law and regulation quality before they can be integrated at the second-stage of the TSLS approach as endogenous explaining variables of control. This is the purpose of the second-step.

series properties of law and regional indicators[6], we are obliged to restrict our data span (made-up of 34 countries) from 1996 to 2008 (see Appendix 3). As we must have earlier emphasized we cut adrift the legal origins debate of cross-country levels and focus on cross-regional levels[7]. Inflation data based on Consumer Price Index is obtained from ADI of the WB.

3.1.1 Financial intermediary efficiency

Borrowing from Asongu (2011) countries with French civil-law legacy will turn to experience higher levels of financial intermediary allocation efficiency both at bank (banking system efficiency) and economic (financial system efficiency) levels. In accordance with the Financial Development and Structure Database (FDSD) we measure banking system efficiency and financial system efficiency with "bank credit on bank deposits: *Bcbd*" and "financial system credit on financial system deposits: *Fcfd*" respectively. *Bcbd* can robustly be checked by *Fcfd* as it accounts for over 87% of its variations (see Appendix 4).

3.1.2 Instrumental variables

After scrutinizing all economic/monetary regions in Africa (Appendix 1), we narrow down member states of regions with respect to constraints of data availability (Appendix 2) before selecting regions based on testable hypotheses, legal origins and correlation analysis (Appendix 3). We choose two economic/monetary regions dominated by French legal traditions (CEMAC and UEMOA) which constitute the CFA zone. We also select two economic regions

[6] For regional data, most economic regions in Africa were created in the 1990's in the heat of structural adjustment policies imposed by the International Monetary Fund. For law data, the World Bank began collecting indicators on the quality of law in Africa only after the pioneering work of LLSV (1998) was first published as working paper at the National Bureau of Economic Research (NBER) in 1996.

[7] A more convenient approach is the adoption of economic/monetary regional-legal origin. Should we limit our empirical framework to country-level analysis, the basis of exchange rate regimes (on which the concept of inflation is founded; Section 2.1) will not be accounted for. Most French civil-law countries are associated with monetary regions in which financial discipline and inflation are dictated and controlled respectively by regional central banks.

dominated by English common-law origin (SADC and COMESA). Beside the motivation of testable hypotheses, the choice of these regions is also based on correlation analysis to avoid problems related to overparametizing and multicolinearity (Appendix 4).

3.1.3 Control variables

In accordance with the literature (Levine & King, 1993; Hassan et al., 2011; Asongu, 2011) we shall control for trade, population growth, GDP per capita growth and government expenditure in the finance regressions. The control variables are obtained from ADI of the WB.

3.1.4 Choice of endogenous explaining variables for control at the second-stage of the TSLS

a*) Regulatory Quality*

According to the World Bank the quality of regulation measures perceptions on the ability of the government to formulate and implement sound policies and regulations that enable and foster private sector development. The concept is appreciated by both representative and non-representative sources. The indicator is measured in percentile rank from 0 to 100.

b) Rule of Law

This indicator captures perceptions on the extent to which agents abide by and have confidence in the rules of society, particularly the quality of property rights, contract enforcement, the courts, the police, as well as the likelihood of crime and violence. It is appreciated in percentile rank from 0 to 100 from a plethora of criteria with representative and non-representative sources.

What is worth noting is that, these two measures incorporate the four indicators considered by Beck et al. (2003) in theorizing the political and adaptability channels of law. These endogenous explaining variables of control must be empirically verified at the second-step

of the validation of hypothesis 2 before they can be used at the fourth-step (second-stage regressions in the Two-Stage Least Squares method).

3.1.5 Brief comparative analyses from Table 1

The last column of Table 1 depicts that relative to French-civil law regions, common-law regions have on average higher levels of inflation. This mean is 2.811% for the Franc zone and 52.188 %(11.869%) for the SADC (COMESA) region. The corresponding high uncertainty associated with inflation is measured by the standard deviation. While on average the Franc Zone has an inflation-uncertainty of 10.474% those of SADC and COMESA are 367.38% and 13.647% respectively. Thus this is confirmation of Hypothesis 1[8].

As expected, regulatory quality, trade and GDP per capita growth are higher in English common-law regions than in French civil-law regions. This is consistent with the law-finance literature (LLSV, 1998; Beck et al., 2003; Agbor, 2011). Also the presence of higher levels of allocation efficiency in French civil-law regions confirm recent findings (Asongu, 2011) on which the object of our work is based.

3.2 Methodology

In accordance with the law-finance literature (Beck et al., 2003; Agbor, 2011) we use the Two-Stage-Least-Squares (TSLS) with dummies of regional origins as instrumental variables. Beside the many advantages of using TSLS, the object of our paper (which is to assess if regional origins affect financial efficiency through inflation) requires an Instrumental Variable (hence IV) estimation technique. This IV approach will entail the following steps:

[8] H1: Inflation is higher in common-law countries

- justify the object of a TSLS over an Ordinary Least Squares (OLS) estimation method through the Hausman test for endogeneity;

- show that the instruments (regional origins) explain the endogenous components of the explaining variable (inflation), conditional on other covariates (control variables);

-assess the validity of the instruments through an Over-Identifying Restriction (OIR) test.

Above steps entail the following models:

First stage regression:

$$Inflation_{it} = \gamma_0 + \gamma_1(British)_{it} + \gamma_2(French)_{it} + \alpha_i X_{it} + \upsilon \quad (1)$$

Second stage regression:

$$Financialefficiency_{it} = \gamma_0 + \gamma_1(Inflation)_{it} + \beta_i X_{it} + \mu \quad (2)$$

In the two equations, X is the set of exogenous variables that are included in some of the second-stage regressions. For the first and second-stage equations, v and u, respectively denote the error terms. Instrumental variables are the five regional origin dummies.

Table 1: Comparative Summary Statistics

Stats	Legal-origin	Regional origin	Efficiency		Law		Control Variables				Instruments(Regions)					Inflation
			Bank	Finance	Reg.	Rule of					French Civil Law Regions			Common-law		
			Bcbd	Fcfd	Quality	Law	Trade	GDPpcg	Pop. Growth	Gov. Exp.	CEMAC	UEMOA	CFA.ZONE	SADC	COMESA	
	French	CEMAC	0.847	0.827	0.217	0.150	78.018	1.105	2.387	10.526	---	---	---	---	---	1.182
	Civil	UEMOA	0.831	0.832	0.323	0.283	60.377	0.889	2.906	12.676	---	---	---	---	---	3.957
Mean	Law	CFA.ZONE	0.837	0.830	0.282	0.232	68.073	0.972	2.706	11.810	---	---	---	---	---	2.811
	Common	SADC	0.611	0.737	0.420	0.430	97.682	3.235	1.914	16.546	---	---	---	---	---	52.188
	Law	COMESA	0.645	0.681	0.326	0.352	80.773	2.112	2.289	14.443	---	---	---	---	---	11.869
	Data		0.708	0.750	0.332	0.330	77.646	2.202	2.336	14.147	0.131	0.210	0.342	0.263	0.289	18.844
	French	CEMAC	0.316	0.297	0.124	0.122	39.014	5.202	0.614	3.860	---	---	---	---	---	13.456
	Civil	UEMOA	0.228	0.224	0.125	0.155	19.620	4.422	0.442	4.441	---	---	---	---	---	7.600
S.D	Law	CFA.ZONE	0.265	0.252	0.135	0.157	30.841	4.723	0.572	4.335	---	---	---	---	---	10.474
	Common	SADC	0.289	0.607	0.194	0.205	45.132	3.436	0.767	6.086	---	---	---	---	---	367.38
	Law	COMESA	0.242	0.278	0.169	0.222	52.630	3.516	1.432	5.476	---	---	---	---	---	13.647
	Data		0.301	0.409	0.171	0.211	39.886	4.246	1.023	5.418	0.338	0.408	0.474	0.440	0.453	193.57
	French	CEMAC	0.188	0.178	0.078	0.019	25.710	-11.137	1.555	2.650	---	---	---	---	---	-100.00
	Civil	UEMOA	0.207	0.243	0.083	0.014	29.993	-29.63	2.092	6.484	---	---	---	---	---	-3.502
Min.	Law	CFA.ZONE	0.188	0.178	0.078	0.014	25.710	-29.630	1.555	2.650	---	---	---	---	---	-100.00
	Common	SADC	0.133	0.137	0.044	0.024	33.491	-7.797	0.548	6.331	---	---	---	---	---	-100.00
	Law	COMESA	0.177	0.253	0.044	0.029	17.859	-15.156	-1.075	4.588	---	---	---	---	---	-2.405
	Data		0.133	0.137	0.044	0.014	17.859	-29.630	-1.075	2.650	0.000	0.000	0.000	0.000	0.000	-100.00
	French	CEMAC	1.718	1.646	0.580	0.457	156.86	29.062	3.826	24.196	---	---	---	---	---	12.431
	Civil	UEMOA	1.244	1.189	0.698	0.519	104.39	10.483	3.699	25.162	---	---	---	---	---	50.734
Max.	Law	CFA.ZONE	1.718	1.646	0.698	0.519	156.86	29.062	3.826	25.162	---	---	---	---	---	50.734
	Common	SADC	1.400	2.606	0.792	0.810	209.41	17.114	3.165	35.138	---	---	---	---	---	4145.1
	Law	COMESA	1.413	1.615	0.792	0.810	255.01	10.655	10.564	31.237	---	---	---	---	---	132.82
	Data		1.718	2.606	0.792	0.810	255.01	29.062	10.564	35.138	1.000	1.000	1.000	1.000	1.000	4145.1
	French	CEMAC	65	60	50	50	65	65	65	65	---	---	---	---	---	64
	Civil	UEMOA	104	104	80	80	84	104	104	95	---	---	---	---	---	91
Obs.	Law	CFA.ZONE	169	164	130	130	149	169	169	159	---	---	---	---	---	155
	Common	SADC	130	126	100	100	130	130	117	115	---	---	---	---	---	128
	Law	COMESA	140	137	110	109	141	143	143	141	---	---	---	---	---	143
	Data		489	477	380	379	472	494	481	454	494	494	494	494	494	465

S.D: Standard Deviation. Min: Minimum. Max: Maximum. Obs: Observations. Bcbd: Bank credit on Bank deposits. Fcfd: Financial system credit on Financial system deposits. Reg: Regulation. Popg: Population growth. Gov.Exp: Government Expenditure. GDPpcg: GDP per capita growth. CEMAC: Economic and Monetary Community of Central African States. UEMOA: Economic and Monetary Community of West African States. CFA ZONE: FRANC ZONE. SADC: Southern African Development Community. COMESA: Common Market for Eastern and Southern Africa.

4. Cross-region regressions

Section 3.1.5 has partially settled the first hypothesis of whether common-law countries exhibit higher levels of inflation and inflation uncertainty. In this section we shall empirically confirm Hypothesis 1 and address the second hypothesis.

4.1 Inflation, efficiency, law and regional origin

This section presents results for steps 1 and 2 of Hypothesis 2. We assess the importance of inflation in explaining financial intermediary efficiency (Panel A of Table 2 for step 1 of Hypothesis 2). We unconditionally regress banking system efficiency on inflation (Model 1) and test for the significance of inflation as a detriment to banking efficiency. Next we control for other potential determinants of banking efficiency (Model 2) before robustly validating our results with financial system efficiency regressions of the same order (Model 1* and Model 2*). All results are significant both at coefficient (significance of t-statistics for the inflation variable) and overall model (significance of Fisher statistics) levels. The negative sign of the significant inflation estimate point to the detrimental effect inflation and corresponding inflation uncertainty exert on financial intermediary efficiency.

Panel B of Table 2 addresses the second-step of Hypothesis 2. This step is essential for our choice of endogenous explaining control variables at the second-stage of the TSLS estimation method. In practice and fact, control variables must a priori be endogenous to (explainable by) instruments both from theoretical and empirical perspectives. Literature has already addressed the theoretical foundation (LLSV, 1998; Beck et al., 2003) where much emphasis is laid on the edge common-law countries have on the quality of regulation and rule of law over French civil-law countries. The comparative summary statistics depicted in Table 1

justify this assertion. But we cannot limit ourselves at those because our objective is not to prove the edge one legal system has over the other. Our law variables are essentially control variables and therefore only their endogenous quality with respect to regional-legal origins is of interest to us. In other words, we are interested in pointing-out that the endogenous components of the rule of law and quality of regulation can be explained by the instruments.

Table 2: Regressions for First and Second steps of Hypothesis 2

		Panel A :First-Step of Hypothesis 2			
		Banking System Efficiency		**Financial System Efficiency**	
		Model 1	Model 2	**Model 1***	**Model 2***
		Bcbd	Bcbd	Fcfd	Fcfd
Constant		**0.722*** **	**1.070*** **	**0.768*** **	**1.165*** **
		(51.50)	**(15.41)**	**(39.35)**	**(11.49)**
Inflation		**-0.0001** **	**-0.005*** **	**-0.0001***	**-0.007*** **
		(-2.448)	**(-4.962)**	**(-1.820)**	**(-3.668)**
Control Variables	Trade	---	**-0.002*** **	---	**-0.003*** **
			(-5.154)		**(-6.027)**
	GDPpcg	---	**-0.007***	---	**-0.010***
			(-1.965)		**(-1.860)**
	Pop. Growth	---	**-0.032** **	---	**-0.056*** **
			(-2.185)		**(-2.684)**
	Gov. Exp.	---	-0.003	---	0.006
			(-1.404)		(1.481)
Fisher test		**5.993** **	**11.321*** **	**3.313***	**10.579*** **
Adjusted R^2		0.010	0.112	0.005	0.107
Observations		460	409	450	399
		Panel B: Second-Step of Hypothesis 2			
		Regulatory Quality		**Rule of Law**	
		Model 3	Model 4	**Model 3***	**Model 4***
French Civil-law regions (Instruments)	UEMOA	**0.323*** **	---	**0.283*** **	---
		(12.29)		**(9.364)**	
	CEMAC	**0.217*** **	---	**0.150*** **	---
		(6.527)		**(3.927)**	
English Common-law regions (Instruments)	CFA.ZONE	---	**0.282*** **	---	**0.232*** **
			(13.59)		**(9.698)**
	SADC	**0.339*** **	**0.339*** **	**0.339*** **	**0.339*** **
		(13.34)	**(13.24)**	**(11.58)**	**(11.48)**
	COMESA	**0.203*** **	**0.203*** **	**0.227*** **	**0.227*** **
		(8.375)	**(8.318)**	**(8.114)**	**(8.045)**
Fisher test		**145.87*** **	**189.76*** **	**105.43*** **	**135.77*** **
Adjusted R^2		0.605	0.599	0.525	0.517
Observations		380	380	379	379

*, **, ***: significance levels of 10%, 5% and 1% respectively. Student t-statistics are presented in brackets. F-test: Fisher-test. Bcbd: Bank credit on Bank deposits. Fcfd: Financial system credit on Financial system deposits. Pop: Population. Gov.Exp: Government Expenditure. GDPpcg: GDP per capita growth. CEMAC: Economic and Monetary Community of Central African States. UEMOA: Economic and Monetary Community of West African States. CFA ZONE: FRANC ZONE. SADC: Southern African Development Community. COMESA: Common Market for Eastern and Southern Africa.

Panel B of Table 2 therefore assesses the importance of regional-legal origin in explaining cross-regional variances in the rule of law and regulation quality. We regress our law indicators on the UEMOA, CEMAC, CFA-ZONE, SADC and COMESA regional origin dummy variables and also test for their joint significance (Fisher test). Results show that distinguishing regions by legal origin helps explain cross-regional differences in the rule of law and quality of regulation. These findings are in accordance with the literature as pointed-out above. Therefore in this second-step of Hypothesis 2, we have empirically justified the law variables we shall use as endogenous explaining variables of control at the second-stage of the TSLS methodology.

4.2 Regional origin, inflation and financial allocation efficiency

In this section, results in Table 3 present cross-region regressions to assess the importance of regional-legal origin in explaining cross-regional differences in financial system efficiency on the one hand and inflation on the other hand. Thus the third-step of Hypothesis 2 is looked at. Results for model 7(7*) confirm Hypothesis 1 in asserting that common-law regions exhibit higher levels of inflation than French civil-law regions. It is also worth noting that these results confirm the first condition for the TSLS methodology where-by, the instruments(regions) must explain the endogenous explaining variable (inflation) conditional on other potential determinants of inflation(control variables). Results for UEMOA and CEMAC are robust to that of the CFA-ZONE.

Models 5(5*) and 6(6*) assess the importance of legal origin in explaining cross-region variances in financial efficiency. Banking system efficiency results are robust to those of financial system efficiency both in terms of estimated coefficients and joint significance of regional instruments (Fisher statistics).

Table 3: Allocation efficiency, inflation and regional origin regressions

		Third-Step of Hypothesis 2					
		Efficiency and Inflation(First-Stage regressions)					
		Banking Syst. Efficiency		**Financial Syst Efficiency**		**Inflation**	
		Model 5	Model 6	**Model 5***	**Model 6***	Model 7	**Model 7***
		Bcbd	Bcbd	Fcfd	Fcfd	Inflation	Inflation
French Civil-law regions (Instruments)	UEMOA	**0.661*** (14.10)**	---	**0.669*** (10.74)**	---	-1.433 (-0.787)	---
	CEMAC	**0.556*** (10.13)**	---	**0.550*** (7.321)**	---	**-3.468* (-1.862)**	---
	CFA.ZONE	---	**0.545*** (13.65)**	---	**0.549*** (10.49)**	---	**-5.449*** (-3.912)**
English Common-law regions (Instruments)	SADC	**0.105** (2.332)**	**0.119*** (2.513)**	**0.260*** (4.304)**	**0.274*** (4.408)**	**4.433*** (3.015)**	**4.501*** (3.002)**
	COMESA	**0.286*** (7.169)**	---	**0.284*** (5.312)**	---	**6.260*** (4.392)**	---
Control Variables	Trade	**0.003*** (9.928)**	**0.004*** (13.62)**	**0.003*** (7.069)**	**0.004*** (10.07)**	---	---
	GDPpcg	**0.014*** (3.311)**	**0.014*** (3.001)**	**0.012** (2.094)**	**0.011* (1.902)**	---	---
	Pop.growth	---	---	---	---	**2.252*** (4.598)**	**3.124*** (6.820)**
	Gov. Exp.	---	---	---	----	-0.084 (-1.141)	-0.013 (-0.181)
F-test(for Instruments)		**234.67*** **	**303.37*** **	**139.60*** **	**189.63*** **	**30.77*** **	**39.53*** **
Adjusted R^2		0.750	0.722	0.647	0.624	0.296	0.266
Observations		467	467	455	455	428	428

Bcbd: Bank credit on Bank deposits. Fcfd: Financial system credit on Financial system deposits. Pop: Population. Gov.Exp: Government Expenditure. GDPpcg: GDP per capita growth.*, **, ***: significance levels of 10%, 5% and 1% respectively. Student t-statistics are presented in brackets. F-test: Fisher-test. Syst: System. CEMAC: Economic and Monetary Community of Central African States. UEMOA: Economic and Monetary Community of West African States. CFA ZONE: FRANC ZONE. SADC: Southern African Development Community. COMESA: Common Market for Eastern and Southern Africa.

4. 2 Second-Stage Inflation and Financial efficiency regressions

This section presents results on the fourth-step of Hypothesis 2. Table 4 addresses two main issues: (1) the concern of whether the exogenous components of the inflation indicator explain financial intermediary efficiency; (2) the issue of if regional-legal origin explains financial intermediary efficiency through some other mechanisms beside the inflation channel. To make this assessment we use the TSLS regressions. The significance of the estimated coefficient of inflation in Model 8(8*) addresses the first issue. The second issue is addressed by the test for the overidentifying restrictions (OIR). The null hypothesis of the OIR-test is that

regional-legal origin dummies (instruments) are not correlated with the error term in the equation of interest (equation 2). Thus the rejection of null hypothesis of the OIR-test is the rejection of the view that regional-legal origin explains financial intermediary efficiency only through the inflation channel. Thus when other potential exogenous determinants of financial efficiency are controlled for, the OIR-test becomes a general specification test for the validity of instruments (regional-legal origin).

Although the first issue is addressed in Model 8, rejection of the null hypothesis of the OIR test shows that regional-legal origin explains banking system efficiency through some other mechanisms than the inflation channel. Models 9(9*) and 10(10*) address the second issue with regard to regulation quality and the rule of law respectively. Model 9 on banking system efficiency (that is robust to Model 9* on financial system efficiency) attest to the fact that regional-legal origin does not explain cross-country differences in financial intermediary efficiency beyond the inflation channel when the law channel of regulation-quality is controlled for. Evidence of this is provided by the result of the OIR-test which fails the reject the null hypothesis. On the other hand, when the rule of law channel is controlled for, as expressed in Model 10(10*) for banking system efficiency (financial system efficiency), there is failure to reject the null hypothesis (rejection of the null hypothesis) of the OIR-test. What do these results tell us; they point to the fact that regional-legal origin does not explain banking system efficiency through some other mechanisms other than the inflation channel when the rule of law channel is controlled for (Model 10). However, from a financial system perspective, even when the rule of law channel is controlled for, regional-legal origin still explains financial system efficiency through some other mechanisms than the inflation channel (Model 10*). This could be explained by the complexity of the financial system in developing countries which entails much more

implicit variables of law (in micro financial institutions and local co-operatives) than in the formal banking sector (banking system) regulated by the governments and central banks.

Another crucial aspect worth noting is the sign of the estimated coefficients. In the absence of other potential determinants of financial efficiency (absence of endogenous variables of control) the inflation coefficients reflect a wrong positive sign (Models 8 and 8*). However, when law is controlled for, the inflation coefficients have the right negative signs (Models 9(9*) and 10(10*)). The validity our TSLS estimation method is justified by the rejection of the null hypothesis of the Hausman test in all 6 regressions. This rejection suggests estimates by OLS are not consistent due to endogeneity.

Table 4: Allocation efficiency and inflation channel regressions

		Fourth-Step of Hypothesis 2					
		Financial Allocation Efficiency(Second-Stage regressions)					
		Banking System Efficiency			**Financial System Efficiency**		
		Model 8	Model 9	Model 10	**Model 8***	**Model 9***	**Model 10***
		Bcbd	Bcbd	Bcbd	Fcfd	Fcfd	Fcfd
Inflation Channel	Inflation	**0.013*** **	**-0.007***	**-0.007***	**0.015*** **	**-0.005***	-0.005
		(3.180)	**(-1.835)**	**(-1.745)**	**(3.227)**	**(-1.749)**	(-1.627)
Control Variables	Reg. Quality	---	**2.581*** **	**---**	---	**2.554*** **	**---**
			(6.183)			**(8.274)**	
	Rule of Law	---	---	**2.515*** **	---	---	**2.494*** **
				(5.811)			**(7.624)**
Hausman test		**172.674*** **	**302.729*** **	**359.423*** **	**200.7*** **	**116.208*** **	**197.262*** **
OIR(Sargan) test		9.299*	**1.587**	**4.236**	**6.729**	**2.225**	6.427**
P-values		[0.054]	**[0.662]**	**[0.120]**	**[0.150]**	**[0.526]**	[0.040]
Adjusted R^2		0.012	0.019	0.005	0.007	0.026	0.008
Observations		460	353	352	450	345	344
Instruments (Economic/ Monetary Regions)	French Civil-Law	UEMOA CEMAC	UEMOA CEMAC	CFA ZONE	UEMOA CEMAC	UEMOA CEMAC	CFA ZONE
	English Common-Law	SADC COMESA	SADC COMESA	SADC COMESA	SADC COMESA	SADC COMESA	SADC COMESA

*, **, ***: significance levels of 10%, 5% and 1% respectively. Bcbd: Bank credit on Bank deposits. Fcfd: Financial system credit on Financial system deposits. Reg: Regulation. . (): z-statistics. Chi-square statistics for Hausman test. LM statistics for Sargan test. [ ]: p-values. OIR: Overidentifying restriction test. CEMAC: Economic and Monetary Community of Central African States. UEMOA: Economic and Monetary Community of West African States. CFA ZONE: FRANC ZONE. SADC: Southern African Development Community. COMESA: Common Market for Eastern and Southern Africa.

5. Conclusion

While recent literature (Asongu, 2011) has debunked the dominance of English common-law countries in prospects for financial development, it has failed to establish empirically why French civil-law countries exert such overwhelming dominance in financial intermediary efficiency over their counterparts with common-law origin. In this paper, we have presented an "inflation uncertainty theory" in providing theoretical validity and empirical justification as to why countries with French legal origin have an edge in financial allocation efficiency. In cementing the Asongu (2011) hypothesis we have cut adrift the legal origins debate at cross-country level by using exchange rate regimes and economic/monetary integration oriented hypotheses. This shift in approach is premised on the fact that the concept of inflation expressed by exchange rate regimes cannot be accounted for at country-level because most French civil-law countries are associated with monetary regions in which financial discipline and inflationary targets are dictated and controlled respectively by the regional central banks.

Our results show that inflation uncertainty that is typical of floating exchange rate regimes accounts for the allocation inefficiency of financial intermediary institutions in English common-law countries when other potential determinants of financial allocation efficiency are controlled for. As a policy implication, results support the benefits of fixed exchange rate regimes in financial intermediary allocation efficiency.

Appendices

Appendix 1: Presentation of Economic and Monetary Regions

Regions	Definition	Member states	Num.
ECOWAS (CDEAO)	Economic Community of West African States	Benin, Burkina Faso, Cape Verde(1976), Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone , Togo, *Mauritania(2000).* **(5/1975)**	15
UEMOA	West African Economic and Monetary Union	Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau (5/1997) °, Mali, Niger, Senegal, and Togo. **(1/1994)**	8
ECCAS (UDEAC)*	Economic Community of Central African States	Angola(1999)°, Burundi, Cameroon, Central African Republic, Chad, D.R.Congo, Equatorial Guinea, Gabon, Congo, Rwanda, Sao Tomé and Principe.(**1985)**	11
CEMAC	Economic and Monetary Authority of Central Africa	Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon. **(1999)**	6
CFA ZONE	CEMAC plus UEMOA	Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo**(9/1939)**	14
SADC	South African Development Community	Angola, Botswana, D.R Congo(1997)°, Lesotho, Malawi, Mauritius(1995)°, Mozambique, Namibia (1990)°, Swaziland, Tanzania, Zambia, Zimbabwe, South Africa(1990)°, *Seychelles(2004-2007°)* and Madagascar(2005)° **(1980)**	15
SACU	South Africa Customs Union	South Africa, Botswana, Lesotho and Swaziland. **(1970)**	4
EAC	East African Community	Burundi (2007), Kenya, Rwanda (2007), Tanzania and Uganda. **(2001)**	5
COMESA	Common Market for Eastern and Southern Africa	Burundi, Comoros, D.R Congo, Djibouti, Egypt(1999)°, Eritrea, Ethiopia, Kenya, Libya(2006)°, Madagascar, Malawi, Mauritius, Rwanda, Seychelles(2001)°, Sudan, Swaziland, Uganda, Zambia, Zimbabwe**.(1994)**	19
IGAD	Intergovernmental Authority on Development	Djibouti, Ethiopia, Eritrea (1993)°, Kenya, Somalia, Sudan, Uganda. **(1986)**	7
UMA	Arab Maghreb Union	Algeria, Morocco, Tunisia, Libya, Mauritania **(1989)**	5

Countries with dates in brackets are non-founding members. ° Date of entry into regional community. Bold dates in brackets represent creation dates. Countries in Italics have withdrawn their membership. * Founded in 1985 but became effective only by 1999. Num: Number.

Appendix 2: Selected regions and countries(based on data availability)

Regions	Member states	Number
ECOWAS (CDEAO)	Benin, Burkina Faso, Cape Verde(1976)°, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.**(5/1975)**	13
UEMOA	Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau (5/1997) °, Mali, Niger, Senegal, and Togo. **(1/1994)**	8
ECCAS (UDEAC)*	Angola(1999)°, Burundi, Cameroon, Central African Republic, Chad, Gabon, Congo and Rwanda.(**1985)**	8
CEMAC	Cameroon, Central African Republic, Chad, Congo and Gabon. **(1999)**	5
CFA ZONE	Cameroon, Central African Republic, Chad, Congo, Gabon, Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.**(9/1939)**	13
SADC	Angola, Botswana, Lesotho, Malawi, Mauritius (1995)°, Mozambique, Swaziland, Tanzania, Zambia and South Africa(1990)°. **(1980)**	10
SACU	South Africa, Botswana, Lesotho and Swaziland. **(1970)**	4
EAC	Kenya and Tanzania. **(2001)**	2
COMESA	Burundi, Egypt(1999)°,Kenya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles(2001)°, Sudan, Swaziland and Zambia.**(1994)**	11
IGAD	Kenya and Sudan. **(1986)**	2
UMA	Algeria, Morocco and Tunisia. **(1989)**	3

Countries with dates in brackets are non-founding members. ° Date of entry into regional community. Bold dates in brackets represent creation dates.

Appendix 3: Selected regions based on testable hypotheses and correlation analysis

Legal-Origin	Regional Origin	Type of Integration	Number
French Civil-Law Regions	CEMAC	Monetary and Economic	5
	UEMOA	Monetary and Economic	8
	CFA ZONE	Monetary	13
English Common-Law Regions	SADC	Economic	10
	COMESA	Economic	11

Appendix 4: Correlation Analysis

Financial Intermediary Development							Law		Control Variables						Instrumental Variables											
Depth		Efficiency		Activity		Size	Reg.	Rule				Gov.		GDP												
M2	Fdgdp	Bcbd	Fcfd	Pcrb	Pcrbof	Dbacba	Qua	of Law	Infl.	Trade	Popg	Exp.	GDPg	pcg	ECOWAS	UEMOA	ECCAS	CEMAC	CFA Zone	SADC	SACU	EAC	COMESA	IGAD	UMA	
1.0	0.97	-0.07	-0.00	0.74	0.59	0.39	0.40	0.63	-0.06	0.30	-0.46	0.33	-0.05	0.05	-0.14	-0.20	-0.34	-0.28	-0.37	-0.03	-0.00	-0.02	0.21	-0.07	0.35	M2
	1.00	-0.04	0.06	0.80	0.68	0.46	0.48	0.68	-0.05	0.32	-0.49	0.37	-0.01	0.10	-0.21	-0.27	-0.34	-0.29	-0.44	0.07	0.10	-0.01	0.25	-0.05	0.31	Fdgdp
		1.00	0.87	0.40	0.42	0.25	0.19	-0.00	-0.11	-0.23	0.01	-0.07	-0.09	-0.08	0.08	0.21	0.15	0.18	0.31	-0.19	0.07	-0.09	-0.13	-0.03	0.03	Bcbd
			1.00	0.53	0.67	0.28	0.30	0.10	-0.08	-0.23	-0.04	0.04	-0.09	-0.07	-0.00	0.10	0.08	0.07	0.14	-0.01	0.27	-0.09	-0.13	-0.05	0.02	Fcfd
				1.00	0.93	0.51	0.61	0.62	-0.06	0.10	-0.41	0.24	-0.02	0.07	-0.16	-0.16	-0.27	-0.24	-0.31	0.10	0.20	-0.03	0.10	-0.04	0.34	Pcrb
					1.00	0.45	0.57	0.53	-0.05	0.05	-0.35	0.26	-0.03	0.05	-0.18	-0.16	-0.23	-0.21	-0.29	0.18	0.34	-0.03	0.04	-0.04	0.25	Pcrbof
						1.00	0.48	0.45	-0.09	0.21	-0.29	0.27	0.06	0.13	-0.14	-0.01	-0.25	-0.23	-0.18	0.23	0.32	0.11	-0.04	-0.06	0.29	Dbacba
							1.00	0.79	-0.09	0.04	-0.27	0.19	0.02	0.08	-0.05	-0.02	-0.43	-0.26	-0.20	0.30	0.32	0.09	-0.02	-0.10	0.16	Reg.Qua
								1.00	-0.09	0.23	-0.34	0.34	0.00	0.08	-0.05	-0.11	-0.47	-0.33	-0.33	0.28	0.30	-0.03	0.06	-0.24	0.16	Rule of L
									1.00	0.10	0.03	-0.14	0.07	0.07	-0.04	-0.03	0.10	-0.03	-0.05	0.10	-0.02	-0.01	-0.02	-0.00	-0.02	Inflation
										1.00	-0.40	0.37	-0.01	0.08	-0.16	-0.20	-0.43	-0.26	-0.20	0.31	0.35	-0.15	0.05	-0.19	-0.02	Trade
											1.00	-0.33	0.22	-0.01	0.30	0.29	0.15	0.01	0.26	-0.23	-0.29	0.08	-0.02	0.03	-0.30	Popg
												1.00	-0.02	0.06	-0.11	-0.13	-0.19	-0.27	-0.31	0.25	0.50	0.00	0.03	-0.03	0.08	Gov. Exp.
													1.00	0.97	-0.03	-0.09	0.02	-0.09	-0.14	0.10	-0.04	0.00	-0.01	0.03	-0.00	GDPg
														1.00	-0.09	-0.15	-0.01	-0.10	-0.20	0.14	0.02	-0.01	-0.01	0.02	0.06	GDPpcg
															1.00	0.71	-0.37	-0.28	0.41	-0.43	-0.24	-0.17	-0.46	-0.17	-0.21	ECOWAS
																1.00	-0.26	-0.20	0.71	-0.30	-0.17	-0.12	-0.32	-0.12	-0.15	UEMOA
																	1.00	0.75	0.30	-0.16	-0.17	-0.12	-0.04	-0.12	-0.15	ECCAS
																		1.00	0.53	-0.23	-0.13	-0.09	-0.24	-0.09	-0.11	CEMAC
																			1.00	-0.43	-0.24	-0.17	-0.46	-0.17	-0.21	Fr. ZONE
																				1.00	0.57	0.12	0.14	-0.14	-0.17	SADC
																					1.00	-0.08	-0.02	-0.08	-0.10	SACU
																						1.00	0.10	0.47	-0.06	EAC
																							1.00	0.36	-0.18	COMESA
																								1.00	-0.06	IGAD
																									1.00	UMA

M2: Monetary Base. Fdgdp: Financial system deposits. Bcbd: Bank credit on Bank deposits. Fcfd: Financial system credit on Financial system deposits. Pcrb: Private domestic credit by deposit banks. Pcrbof: Private domestic credit by financial institutions. Dbacba: Deposit bank assets on central bank assets plus deposit bank assets. Reg.Qua: Regulation Quality. Infl: Inflation. Popg: Population growth. Gov.Exp: Government Expenditure. GDPpcg: GDP per capita growth. CEMAC: Economic and Monetary Community of Central African States. UEMOA: Economic and Monetary Community of West African States. CFA ZONE: FRANC ZONE. SADC: Southern African Development Community. COMESA: Common Market for Eastern and Southern Africa. ECOWAS: Economic Community of West African States. ECCAS: Economic Community of Central African States. SACU: Southern African customs Union. EAC: East African Community. IGAD: Intergovernmental Authority on Development. UMA: Arab Maghreb Union.

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