

### The Rationality of French Investors before World War I: A Cliometric Contribution

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**Abstract:** This paper can be seen as an illustration of the cliometric approach and its contribution to the knowledge of French international capital movements before WW1. Using a formal theoretical framework and advanced econometric technics improves our understanding of the influences of French capital exports from the end of the 19<sup>th</sup> century until the eve of World War. We recall here the main findings of our research published in *The Journal of Economic History* (June 2004) which highlights the crucial incidence of economic and financial factors, whereas conventional wisdom limited the explanation of French capital exports to political and diplomatic causes.

In a former article published by the JEH on “The Influences affecting French Assets Abroad Prior to 1914”, we analysed capital movements observed by the end of the 19<sup>th</sup> century until the beginning of World War I, between France and foreign countries. Initially, we presented and studied the available estimates of French capital exports; we also made a critical review of the various available indicators on capital movements in the French Balance of Payments (based on the aggregation of current account balance of payments surpluses and the estimates of capital income). We found these indexes inappropriate because of the

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earnings' estimates and more generally because of the methods used. As a matter of fact geographical characteristics of French investment abroad, stood as the backbone of the "old literature": according to common knowledge, French investment abroad was politically driven whereas British ones appeared economically motivated. We made a discussion of this conventional wisdom. We gave preliminary evidences that French market had developed institutional support for extensive international transactions at the end of the 19<sup>th</sup> century; we illustrated our point of view with examples of French openness to international finance. Then, we developed of sets of new calculations of investment earnings and overseas' capital stock. Our estimate of the stock of overseas assets aggregated with the Archives du Crédit Lyonnais data on new issues in Paris market. In addition, we underlined that estimates of the stock of overseas assets should consider adjustments for changes in the market value of the outstanding assets. To that end, we compiled indexes on bonds and stocks using information from the market transactions reported in the financial press, mostly *L'économiste français*. With these new indexes, we were liable to test the question: did French capital exports respond to economic factors? We found that French foreign investments were determined by differences in yield and demand for capital in "Europe and its periphery". Econometric analysis based on these new and improved estimates of French capital exports, allowed us to conclude that French foreign investment did react to economic variables that influence portfolio's decisions. This result obviously contrasts with the existing literature according to which French investment overseas were politically driven.

In the following part, we underline the scope and limits of cliometric approach as well as the difficulties encountered in evaluating French assets allocation abroad using a portfolio approach.

### According the Old Thesis, French Foreign Investments were Politically Driven

Feis (1930) argued that over the 1870-1914 period, French assets allocation abroad relied mostly on political factors whereas British investment strategies abroad depended on economic ones. White (1933) and Cameron (1961) have further developed this theory which overall stands as the core proposition of what could be called the "old literature". This view depended entirely on the geographical orientation of French assets abroad. France rather invested in mere dynamic regions such as South and Eastern Europe, Russia, the Ottoman Empire and Egypt than in prosperous economies (e.g. the United States, Canada, Australia, South Africa). According to Lévy-Leboyer (1977), France remained too tied to the old continent and did not manage in diversifying its

foreign investment. This geographical concentration is seen as not inefficient, risky and inconsistent with commercial flows. Lévy-Leboyer (1977) argued that profitability was not considered in France when setting up business abroad. This common knowledge became the thesis of “economic inconsistency” of French capital investment strategy: The French geographical structure of foreign financial investments showed that France was seeking to strengthen its hegemony within the sphere of diplomatic influence; French capital exports in Russia or in the Balkans, complementing in the financial field the political and diplomatic alliance with these countries.

Questioning this one way and limited explanation of British and French capital export characteristics, Parent and Rault (2004) test whether economic arguments can be applied to French investments’ decisions.

### Testing the Significance of Economic Factors in French Foreign Investment with a Portfolio Approach

To deal with this question, the CAPM basic international portfolio’s model happens to be the appropriate framework. It says that the asset demand functions in foreign currencies depend on speculative and hedging investor’s behaviour. Two elements compose the demand function of foreign assets: a yield difference for speculation and an exchange rate level to hedge against exchange rate risks.

For this theoretical framework to be valid, a number of conditions have to be met: the shares of foreign funds and equities in the global portfolio, the exchange rate of the Franc against a panel of currencies, and domestic and foreign observed yields. Various difficulties were encountered both in collecting appropriate data on these variables and in applying a portfolio approach from these historical data.

Regarding the relevance of applying portfolio approach to annual data on capital stocks and yields, objections can be made. Short-term usually defines the time framework of arbitrage and portfolio choices. However, we argue that learning about the past can be done while using the economic modelling whatever the periodicity of historical data.

In order to obtain a stock at a market value (valid for a portfolio analysis), we have: (1) gathered available data from direct sources; (2) impose the initial stock in 1891 according to financial analysts’ estimates; (3) use the annual flows of subscriptions from this starting point onwards; (4) adjust the market value of the stock using share and bond prices published by *L’Economiste français*. Then, using these improved series for the stock in French foreign assets, we tested whether a portfolio model could account for French foreign financial asset relocation.

In our portfolio approach, we needed to consider asset risk. However, we did not include it in our specification since difference between a risky and a fixed income asset could not be precisely established with our data. We had to consider that the yield difference between foreign and French financial assets was sufficient to test the portfolio hypothesis according to which foreign fixed (variable) income assets are globally balanced with equivalent domestic assets. This limit is part of our current research in order to improve the model.

The observed yield for each foreign bond has been compiled as the ratio of coupon to price, and the rate of return index as the simple arithmetic mean. We made this simplification for three reasons: First, the amount of each subscription was unknown; Second, although calculating the return to maturity on each foreign bond would have been more accurate, it was not possible. Calculating an actuarial rate of return for each bond needs to know the value of the coupon, the dates of distribution of this coupon (unknown for several bonds of the panel), the redemption price (if the bond is redeemable and some are), the price at the end of the year, and the advance redemption possibility (which must not be undervalued, because it may significantly increase the return rate). We have chosen to consider a larger number of assets rather than limiting our sample to those on which we could have calculated actuarial returns (our panel is composed of 18 foreign bonds) because portfolio diversification played a key role. We considered them as perpetual rents since a twenty-year period is covered (1890 to 1913). In that case, the coupon to price ratio emerges as a proxy of the actuarial rate of return. Thus, in this data-constrained simplification, calculating the coupon to price ratio is technically justified. A similar ratio was compiled for stocks (our panel is composed of 7 foreign equities).

The relationship between observed return rates to expected return rates was another problem concern. We were restricted by data and forced to make a constrained choice. We assumed that economic agents over this period formulate rational and true expectations. Therefore, in our econometric test, it enabled us to take the calculated rate of return of the  $t+1$  year as the indicator of the expected rate of return in  $t$ . Since no other hypothesis could, for lack of data reason, permit us to implement a portfolio test, this choice appears to be a methodological requirement

Our model is not a “pure” portfolio model testing only the sensitivity of the portfolio to yield returns. We adopted Edelstein’s (1974) formulation of the debate in terms of “push or pull factors”. Thus, we analysed whether French financial investment in Europe and its periphery was affected by financial or real needs of the host countries of this area on top of the yield relationship, besides the yield relationship. Did French capital exports respond to industrial and financial needs of the host countries that offered investment potentialities in public funds or in share participation with sustained industrial growth perspectives?

We carried out two tests separately, given the model presented above (and its limits): One concerning foreign fixed income financial assets (in which the endogenous variable  $R$  is the “ratio of foreign bonds to total French and foreign assets held by French residents”) and the other concerning foreign variable income financial assets held by French residents (in which  $R^*$  the endogenous variable is the “ratio of foreign equities to total French and foreign assets held by French residents”).

We test the following equations over the 1890 to 1913 period:

$$\begin{aligned} R &= f(\text{PDI}_t, r_t, r'_t, e_t) \\ R^* &= f(\text{IPI}_t, rA_t, rA'_t, e_t), \text{ where} \end{aligned}$$

$\text{PDI}_t$  is the public debt index for the area “Europe and its periphery”,  $r_t$  ( $r_{t+1}$  actual) the expected rate of return on French bonds,  $r'_t$  ( $r'_{t+1}$  actual) the expected rate of return on foreign bonds,  $e_t$  the exchange rate of the French Franc against a panel of European currencies, plus the US dollar, and  $\text{IPI}_t$  the industrial production index of the area “Europe and its periphery”,  $rA_t$  ( $rA'_{t+1}$  actual) the expected rate of return on foreign stocks,  $rA_t$  ( $rA_{t+1}$  actual) the expected rate of return on French stocks.

In line with our theoretical priors, the econometric methodology adopted in Parent & Rault (2004) yields the two final models (estimated with Maximum Likelihood) with parsimonious dynamics, and fully identified long-run relationships. These models are both theory consistent and congruent with the data.

## A Revisited Story of French Foreign Investments before World War I

In this paragraph, we recall the main findings related to the first equation in order to highlight the contribution of this cliometric approach to the understanding of France capital exports prior to 1914 (for further development the reader should refer to Parent and Rault, 2004). The economic driving factors of French financial property abroad were successfully rebuilt with this model: we found that the long-run target of the French investor was negatively correlated with the level of domestic expected rates of return; positively correlated to the level of foreign expected rates of return, and also positively correlated to the public sector borrowing requirements of the area “Europe and its periphery”. In the short run, the investor corrects the distance to this long-term target according to the variation of the domestic rate of exchange, the variation of the public sector borrowing requirements of the area, and the variation of foreign assets’ expected rate of return (all signs correctly oriented). Thus, the economic and financial arguments underlying the diversification of French capital abroad at

the turn of the 19<sup>th</sup> century until 1914 were highlighted by combining micro-economic and econometric approaches.

We have stressed the role of economic and financial factors in French capital exports, contrary to the usual conclusions on the French case, which insist on political or diplomatic considerations. Using economic modelling, it has been shown that the destination of French financial flows was consistent with a rational economic behaviour. Notably, in line with the portfolio theory, this study highlights the core role played by the expected returns on foreign and domestic assets. We showed that the economic and financial hypothesis could not be rejected when using economic or financial explanatory variables exclusively to reassess the French financial position in the world before WWI. This argument puts the diplomatic and political thesis into perspective.

This study (Parent & Rault, 2004) illustrates that cliometrics (economic modelling plus advanced econometrics applied to history) can help to fight against myths in economic history. Obviously, these first results need to be improved by an accurate study of risk in French foreign asset allocation. This is a part of current research.

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