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Intra-safe haven currency behavior during the global financial crisis



Rasmus Fatum^{a,*}, Yohei Yamamoto^b

^a School of Business, University of Alberta, Edmonton, Alberta T6G 2R6, Canada

^b Department of Economics, Hitotsubashi University, 2-1 Naka, Kunitachi, Tokyo 186-8601, Japan

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ABSTRACT

We investigate intra-safe haven currency behavior during the recent global financial crisis. We first assess which safe haven currency is the “safest”. We then use non-temporal threshold analysis to investigate whether intra-safe haven currency behavior changes as market uncertainty increases. We find that the JPY is the “safest” of safe haven currencies and that only the JPY appreciates as market uncertainty increases regardless of the prevailing level of uncertainty. Our results may have important implications for central banks optimizing their relative composition of international currency reserve holdings with respect to returns in USD terms and for foreign currency market investors in general.

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1. Introduction

In this paper we investigate intra-safe haven currency behavior during the recent global financial crisis.¹ We first assess which safe haven currency is the safest during this period of extreme market

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* Corresponding author. Tel.: +81 42 580 8744.

E-mail address: rasmus.fatum@ualberta.ca (R. Fatum).

¹ We define a safe haven currency as a currency that increases its relative value against other currencies as market uncertainty increases. While the definition of a safe haven currency varies across studies, as noted by Coudert et al. (2014) and Kohler (2010), our definition of a safe haven currency is consistent with Habib and Stracca (2012), and Rinaldo and Söderlind (2010). Moreover, we define intra-safe haven currency behavior as currency behavior among currencies typically considered as possible safe haven currencies.

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uncertainty. To do so, we apply standard time-series methods and we follow [Habib and Stracca \(2012\)](#) and many others in using the VIX, the measure of implied volatility of S&P 500 options, as our main indicator of market uncertainty. The currencies we consider are the USD, the JPY, the CHF, the EUR, the GBP, the SEK, and the CAD.² Subsequently, we study whether the intra-safe haven currency behavior among these currencies changes, e.g. accelerates or decelerates, when market uncertainty increases beyond identifiable threshold levels. This part of our analysis employs the non-temporal threshold testing procedure originally developed by [Hansen \(2000\)](#).

The literature on safe haven currencies is relatively sparse and relies on different definitions of what constitutes a safe haven currency. Nevertheless, recently important strides have been made toward attempting to explain what drives safe haven currency behavior as well as toward documenting safe haven currency behavior.³ [Habib and Stracca \(2012\)](#) carry out a monthly frequency analysis of the behavior of 52 currencies over the span of almost a quarter of a century and show that only few country-specific factors such as the net foreign asset position and the size of the stock market, and for advanced countries the interest rate spread vis-à-vis the US, are systematic drivers of safe haven currency behavior.⁴ [Rinaldo and Söderlind \(2010\)](#) provide a high-frequency intra-safe haven currency analysis of the behavior of five currencies (CHF, DEM, EUR, JPY, and GBP) against the USD over the 1993 to 2008 period. They show that rising foreign exchange market volatility, rising US bond prices, and falling US stock prices are generally associated with a depreciation of the USD vis-à-vis both the CHF and the JPY. They also find that the safe haven properties of the JPY relative to the USD are particularly pronounced during the recent global financial crisis. [Coudert et al. \(2014\)](#) offer a daily data analysis of the evolution of 26 currencies from both advanced and emerging economies over the 1999 to 2013 period. They find that only the JPY and the USD exhibit safe haven currency properties. Importantly, the findings of [Rinaldo and Söderlind \(2010\)](#), [Coudert et al. \(2014\)](#), and others indicate that safe haven currency behavior materializes in a non-linear fashion.⁵

We attempt to contribute to the safe haven currency literature in two ways. First, we investigate intra-safe haven currency behavior during the global financial crisis to answer which safe haven currency is the safest during this period of extreme uncertainty, i.e. which safe haven currency, if any, systematically strengthens against other possible safe haven currencies as market uncertainty rises toward unprecedented levels. Second, we turn our focus to non-linearities by first endogenously identifying uncertainty thresholds around which intra-safe haven currency behavior might change and, subsequently, by documenting how said behavior evolves before and after these uncertainty thresholds are surpassed. Since safe haven currency behavior is likely to be particularly pronounced when market uncertainty is high, we focus our analysis on the recent global financial crisis period during which financial stress and market uncertainty rose to unprecedented levels.

In the first part of our analysis, we use OLS with heteroskedasticity- and auto-correlation consistent (HAC) standard errors to estimate exchange rate time-series models over the August 1, 2007 to January 31, 2009 financial crisis period, i.e. the crisis period definition suggested by [Melvin and Taylor](#)

² The global importance and safe haven properties of the USD are often heralded. For example, [Kaul and Sapp \(2006\)](#) provide evidence that the USD was used as a safe haven currency at the turn of the millennium. In a recent in-depth investigation of the USD, including its safe haven properties, [Prasad \(2014\)](#) suggests that the global importance of the USD will remain. The JPY, the CHF, the EUR, the GBP are also often considered to be safe haven currencies. For example, [Rinaldo and Söderlind \(2010\)](#) find that during episodes of elevated market uncertainty prior to the global financial crisis, the JPY, the CHF, the EUR, and the GBP were exhibiting safe haven currency behavior. We also include in our set of currencies to consider the SEK and the CAD as both of these currencies are occasionally considered as safe haven currencies by media and market analysts, see for example [Brown \(2014\)](#) and [Ratner \(2011\)](#).

³ [Rinaldo and Söderlind \(2010\)](#) observe that the academic literature on the topic of safe haven currency behavior is sparse relative to the attention the topic gets in the media and by financial market practitioners.

⁴ The comprehensive and currently definite study by [Habib and Stracca \(2012\)](#) suggests that we know relatively little about the drivers or fundamentals of safe haven currencies. It is possible that the degree of isolation in the form of lack of trade openness as well as the degree of integration either in the form of trade openness or in the form of financial market openness can influence the extent to which the currency of a country is exhibiting safe haven currency behavior. Neither is going to change discernibly on a daily basis and is thus unlikely to influence the results of our daily data analysis. It is beyond the scope of our study to attempt to add new insights in regard to what drives safe haven currency behavior.

⁵ For example, [Coudert et al. \(2014\)](#) identify ten separate financial crises periods over their 14 year sample and find that safe haven currency behavior is more pronounced during these periods of high market uncertainty.

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