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# Journal of International Money and Finance

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## Carry funding and safe haven currencies: A threshold regression approach <sup>☆</sup>



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### ARTICLE INFO

#### Article history:

Available online 21 July 2015

#### Keywords:

Nonlinear regression

Threshold model

Safe haven

Carry trade

### ABSTRACT

We analyze which currencies can be regarded as safe haven currencies. Our empirical approach allows us to distinguish between a low- and high-stress regime, and to control for the impact of carry trade reversals and other fundamental determinants. We therefore address the question of whether a supposed safe haven currency only appreciates in times of crises because carry trades are unwound, in which the corresponding currency has served as funding currency, or whether it possesses “true” safe haven qualities; i.e. it provides a hedge in stressful times even after controlling for the impact of carry trade reversals. The latter issue has largely been brushed aside in the extant literature but has important policy implications for the justification of central bank FX interventions in times of crises. According to the estimation results, two currencies, the Swiss franc and (to a lesser extent) the US dollar, qualify as safe haven currencies, and the euro serves as a hedge currency. Results for the yen support its role as a carry funding vehicle, but not necessarily that of a safe haven currency. While the focus is on effective exchange rates, the paper also contains a separate analysis of bilateral euro-based exchange rates, given the euro’s prominent role during the euro area sovereign debt crisis.

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<sup>☆</sup> The study represents the authors’ personal opinions and does not necessarily reflect the views of the Deutsche Bundesbank or its staff. The authors thank Wilhelm Althammer, Markus Baltzer, Menzie Chinn, Richard Clarida, Christoph Fischer, Ulrich Grosch, Heinz Herrmann, Jeong-Ryeol Kurz-Kim, participants at the Columbia-Tsinghua Conference on International Economics, seminar participants at the Deutsche Bundesbank, as well as participants at the 4th Workshop on Financial Determinants of Exchange Rates in Amsterdam for helpful comments.

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## 1. Introduction

After the Swiss franc (CHF) moved toward parity with the euro (EUR) in mid-2011, the Swiss National Bank (SNB) announced a minimum exchange rate of 1.20 CHF/EUR. It argued that the “massive overvaluation” of the franc was a threat to the Swiss economy and was causing risks of arising deflationary pressures.<sup>1</sup> In a rare congruence, analysts attributed the dramatic appreciation of the franc relative to the euro as well as in effective terms preceding the announcement to Switzerland’s status as a safe haven – a place to which investors resort to in times of high financial stress. Correspondingly, the CHF has frequently been called a safe haven currency. A perusal of media sources as well as the economics literature reveals that it is not the only currency to which the label of a “safe haven currency” has been attached. Other currencies that have (more or less frequently) been called safe haven currencies include the yen (JPY), the US dollar (USD), the pound sterling (GBP) and the EUR. More generally, previous empirical results suggest that low interest-currencies typically depreciate smoothly in “risk-on” episodes but appreciate abruptly in “risk-off” episodes (see, among others, Brunnermeier et al., 2008, Burnside et al., 2011, as well as Gagnon and Chaboud, 2007). But should all low interest currencies that appreciate in times of crisis be called “safe haven currencies”?

While the appreciation of low interest currencies in times of crisis might be due to their perceived safe haven status, this pattern is also consistent with an unwinding of open carry trade positions, in which these currencies served as funding currencies.<sup>2</sup> Obviously, it makes a crucial difference, what the underlying cause for a currency’s appreciation in times of crisis is not least from a policy perspective. If a country issues a currency that is widely used to fund carry trades, its international competitiveness is likely to benefit from a steady depreciation of its currency in tranquil times. A reversal, at least in principle, then “just” reverses previous gains in competitiveness. In our view, a “true” safe haven currency does not (only) appreciate because it served as a carry funding currency but because it is generally regarded as being safe by investors.<sup>3</sup> As a consequence, countervailing policy measures seem more comprehensible in the latter than in the former case. Beside the impact of carry trade reversals or “true” safe haven flows, the appreciation of a currency in times of crisis might also (at least partly) be due to the (possibly different) impact of other “classic” exchange rate determinants, unrelated to safe haven flows or carry trade reversals.

Following this discussion, the aim of our paper is to determine which of the G10 currencies really qualify as safe haven currencies. Anticipating our approach, we define a currency to be a safe haven currency if its effective returns are significantly negatively related to global stock market returns in times of high financial stress, even when controlling for the impact of carry trades (respectively, their reversal) and the possibly regime-specific impact of fundamental exchange rate determinants. To this end, we estimate Hansen (2000) threshold regressions for G10 effective exchange rate returns, where country-specific financial stress-threshold values separating the low- from the high-stress regime are determined endogenously and tested for significance.

More specifically, the contributions of this paper are as follows. First, we provide a clear definition of when a currency should be regarded as a safe haven currency. Second, we analyze which of the G10 currencies qualify as safe haven currencies according to our criteria and estimation results. Third, in contrast to the previous literature, we analyze effective as opposed to bilateral exchange rates. This allows us to gauge the impact of a currency’s safe haven status on the international price competitiveness of the respective economy (given the high comovement between G10 nominal and real

<sup>1</sup> For details see the respective SNB press release from September 6, 2011 downloadable at [http://www.snb.ch/en/mmr/reference/pre\\_20110906/source/pre\\_20110906.en.pdf](http://www.snb.ch/en/mmr/reference/pre_20110906/source/pre_20110906.en.pdf). Meanwhile, on January 15, 2015, the SNB announced to discontinue the minimum exchange rate.

<sup>2</sup> When investors follow a carry strategy, they sell short a (low interest) funding currency (such as the JPY) and simultaneously buy a (high interest) target currency. This induces excess supply of the funding currency and excess demand for the target currency. In times of crisis, such a strategy might appear too risky to the investors and lead them to suddenly unwind their open positions, exerting sudden upward pressure on the funding currency.

<sup>3</sup> Empirically, it is, however, hard to identify the underlying cause of the appreciation because both carry unwinding and safe haven flows are triggered by high financial stress and result in an appreciation of the funding/safe haven currency.

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