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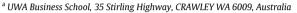
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#### Full length article

## Why is gold a safe haven?

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#### ABSTRACT

Gold is a prominent safe haven asset but risky compared to other safe haven assets such as US government bonds. We identify unique features of gold that explain why investors under stress buy the riskier alternative gold. We argue that the decision to buy gold is rooted in behavioral biases associated with gold's history as a currency, a store of value and a safe haven. The empirical analysis shows that gold was a particularly strong safe haven in the aftermath of September 11, 2001 and the Lehman bankruptcy in September 2008. The Global Financial Crisis also exemplifies the role of the US dollar as a safe haven currency and how it can mask the safe haven effect of gold. Finally, we find that safe haven assets do not exacerbate crises via a negative feedback effect.

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The term "safe haven" features regularly in the financial media, where it is applied to a dizzying range of assets, including various currencies, government bonds and commodities. A search on the Financial Times website for the term "safe haven" yields 4419 hits and a similar search on the Wall Street Journal website yields 2922 entries displaying a vast range of "safe haven" assets. The search results also suggest a dynamic inconsistency. For example,

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the US dollar is cited as a safe haven currency in one month but only a month later the media claims that the US dollar has lost its safe haven status.<sup>3</sup> There thus appears to be some confusion with regard to the definition of a safe haven asset.

While in general, portfolio diversification may allow investors to reduce the risk of suffering large losses on their investments, during periods of financial market turmoil various asset classes tend to co-move strongly, even where macroeconomic fundamentals would not suggest strong

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<sup>&</sup>lt;sup>1</sup> The search was performed in February 2016.

<sup>&</sup>lt;sup>2</sup> An arbitrary list of article headlines in the Wall Street Journal includes "Sterling to Trade More Like a Safe Haven" (3 Oct 2012), "Australian Debt Draws Safe-Haven Crowd" (14 Aug 2012), "Gold Poised to Regain Safe-Haven Status" (28 May 2012), "Nordic Banks Gain New Status: Haven" (24 Sep 2012), "Seeking a New Safe Haven" (18 Jul 2011), "Dollar Rises on

Safe-Haven Flows" (16 Nov 2012), "Singapore Dollar Higher Late, Benefits From Safe-Haven Flows" (5 Dec 2012), "Investors are seeking safety in new harbors" (1 Mar 2011).

<sup>&</sup>lt;sup>3</sup> In contrast to the articles in the financial media, there is rather robust academic evidence that the US dollar is a safe haven asset (e.g. see Kaul and Sapp, 2006, Fratzscher, 2009 and Ranaldo and Söderlind, 2010).

interdependence (Dornbusch et al., 2000). Such contagion effects, and the increased co-movement across countries, industries and asset classes during crisis periods, motivates the search for a safe haven asset, which does not move in tandem with other assets and holds its value during these specific episodes. We can therefore define a safe haven asset empirically, as an asset that is either uncorrelated or negatively correlated with other assets during periods of financial stress, e.g. during a financial crisis (Baur and Lucey, 2010; Baur and McDermott, 2010).<sup>5</sup> According to this definition, a safe haven asset does only lose its safe haven status if it co-moves with the stock market in a crisis. The asset would not automatically and necessarily lose its safe haven status if the price of the safe haven asset fell in non-crisis periods. In fact, the decoupling of safe haven assets from equity markets in normal times is a necessary condition for a safe haven asset to be different from a riskfree safe asset.

The recent attention on "safe assets" can also be related to the global financial crisis. In particular, the demand for alternative safe assets has been driven in part by concerns over mutually reinforcing bank and sovereign debts, particularly in the Eurozone. However, the concept of a "safe asset" - defined by Gorton et al. (2012) as an asset whose value is insensitive to information - can be clearly distinguished from a "safe haven" asset, which, as noted above, is defined by its relation to other assets during specific periods, and is therefore dependent on information flows. The safe haven effect, as defined above, is essentially then a short-lived phenomenon compared to the long-lived characteristics of safe assets. In other words, a safe asset is safe at all times whilst a safe haven asset is only safe (and only need to be safe) during times of crisis or turmoil.

Two of the most prominent safe haven assets, US Treasury bonds and gold, are particularly interesting to study since they offer investors very different forms of "safety". Bonds are an obvious choice as safe haven asset, given that they offer a fixed return if held to maturity. The returns of gold, on the other hand, are not fixed but instead volatile and thus risky. In addition, the cost at

which the "safety" can be purchased also differs. Bid-ask spreads can be assumed to be significantly wider for gold in the spot market than for US Treasury bonds which means that investors pay a premium if they buy gold compared to the purchase of bonds. Storage costs for physical gold may add to this premium. However, gold offers investors protection from additional threats to which bonds are susceptible; that is inflation, currency risk and, perhaps most importantly, default risk. These distinct characteristics of bonds and gold make their joint analysis potentially more revealing with regard to what motivates investor purchases of safe haven assets.

In our empirical analysis, we examine (i) specific periods of financial turmoil and crises and (ii) identify large negative shocks in the stock market as a trigger for safe haven purchases. We assume that large shocks carry more information than small shocks rendering large shocks more difficult to process than smaller shocks especially if the shock contains "new", i.e. unfamiliar, information. Investors thus react differently to large shocks than to smaller, and more normal, shocks. <sup>10</sup> We then test whether the reaction of safe haven assets differs with respect to different shock magnitudes. The empirical analysis shows that safe haven assets indeed only react to extreme negative shocks.

This study contributes to the existing literature with (i) the joint modeling of the most prominent safe haven assets including safe assets, (ii) the use of behavioral biases to explain why gold is a safe haven asset despite its high risk and (iii) the identification of feedback effects from safe haven assets on global equity markets affecting financial stability.

The use of a global stock market index (MSCI World or the S&P 500) allows us to treat large negative shocks as systemic and as a proxy for contagion among at least a subset of the countries in the index. The joint modeling of the interactions among the potential safe haven assets is particularly important for assets that are priced and denominated in US dollars, e.g. commodities. For example, if both the value of gold and the value of the US dollar increase during a financial crisis, the estimated safe haven effect of gold will appear smaller in US dollars than in another currency. In other words, the safe haven effect is potentially underestimated.

We find that gold, US Treasury bonds, the US dollar and the Swiss franc act as "safe haven" assets during periods of market stress. The strength of gold's safe haven effect is most clearly illustrated in specific crisis episodes. In particular, for those episodes that closely correspond to the idea of a "black swan" event that carries a large amount of "new" information – i.e. the "9/11" terrorist attacks in New York in September 2001 and the collapse of Lehman Brothers in September 2008 – the reaction of

<sup>&</sup>lt;sup>4</sup> The literature on financial crises and contagion examines the responses of investors to financial market shocks, and how those shocks get transmitted across markets and across asset classes. Boyer et al. (2006) present evidence that crises spread through the asset holdings of investors, as opposed to changes in economic fundamentals. More recent studies on contagion include Bartram and Bodnar (2009) on the crisis of 2008 and 2009 and Mink and de Haan (2013) on the European Sovereign Debt Crisis.

<sup>&</sup>lt;sup>5</sup> Note that this definition implies that assets that display such properties during a single episode of financial stress or turmoil only do not qualify as safe haven assets.

 $<sup>^6</sup>$  Other studies on "safe assets" are Gourinchas and Jeanne (2012) and IMF (2012).

<sup>&</sup>lt;sup>7</sup> Baur and McDermott (2010) distinguish between strong and weak safe haven effects. A weak safe haven is consistent with a safe asset since it is defined to be uncorrelated with extreme stock returns and thus insensitive to information from the stock market.

<sup>&</sup>lt;sup>8</sup> The simultaneous demand for both gold and US Treasuries may constitute a puzzle given that the former is considered to be an inflation hedge and the latter is a bet against high inflation (see for example "Safety Thirst", *The Economist*, 7 May 2011).

<sup>&</sup>lt;sup>9</sup> Currency risk can be viewed as a form of default risk since a currency devaluation is similar to a partial default for an international investor.

<sup>10</sup> Peng et al. (2007) argue that investors can only process a limited amount of information during a given time period. This "limited attention" may result in different reactions of investors to large shocks than to small shocks.

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