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Abstract

This paper focuses on how gold as a physical object moves in financial markets, in what is known by many market participants as 'the gold space'. Gold acts today in financial markets as an ambiguous moral and calculative actor, whose material properties signify both solidity and speculation. This paper examines gold as a 'speculative substance' in two arenas: (1) controversies surrounding what should be done with the gold that is held in central banks as part of the sovereign wealth of nation-states but no longer as reserve currency; and (2) A split between markets for 'physical gold' and other financial assets that are based on gold, such as gold exchange-traded funds.

Keywords: gold; finance; value; speculative substance.

At the Bank of England museum on Threadneedle Street in London, visitors can reach through a hole in a secure Lucite case to handle a 13 kg bar of gold. Above the case where the bar is housed runs a ticker display of its current price. This display brings together the special material qualities of gold with its ever-changing face value. On the day I visited, the exhibit was thick with people waiting to stick their hand in to touch and weigh the gold. Likewise, in an interview in the spring of 2015, an executive from the World Gold Council described how he advised his colleague to open up a presentation

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about gold. 'I told [him], always bring out the gold bar. It brightens up the room every time. They turn into little kids. It's the shine'. These two instances show how gold as a physical object continues to grab attention as a financial actor, even after it has ceased to be the underlying asset for international currencies. Within the supposedly virtual worlds of contemporary finance, the physical substance of gold seems to persist as a source of value, at least for some. Moreover, gold as a physical substance plays seemingly contradictory roles in the areas of finance where it appears, acting both as a sign of speculative, risky practice and marker of probity and 'real value'.

This persistence of gold as a perceived site of value, and the double character of that value as both speculative and substantial, does not come from nowhere. Gold has a long history in 'Euroamerican'[1] contexts as a substance with distinctive and impressive material-semiotic force (Bernstein, 2012; Green, 2007; Maurer, 2005; Michaels, 1987; Shell, 1982; Vilar, 2011). Indeed, for a significant part of the modern period, it was not only a precious metal prized for adornment and ceremonial uses, and a sign of political power and religious devotion, but also as the anchor for numerous national currencies. Furthermore, gold's material qualities, its luster, malleability, divisibility and the fact that it does not tarnish or rust, added to its semiotic force as an enduring repository of value (Bernstein, 2012; Marx, 1857). We can see this in the way that gold's mass is highlighted in the museum exhibit and in the assertion by the WGC executive that 'it's the shine'.

Gold's status as reserve currency came to an end over the course of the twentieth century, first in 1931 when the Bank of England moved off the gold standard, and second in 1971 when Richard Nixon ended the convertibility of gold with the dollar at a rate of $35/ounce. This latter move has often been taken as a watershed moment in the world economic order (Gregory, 1997). Among other things, it allowed a market for gold, making it an object of financialization, in the specific sense of the term (Christophers, 2015). That is, gold could be traded in commodities markets, including through 'derivatives' such as futures and options. Gold could also now be the basis of financial assets whose prices fluctuate in relation to other financial assets, and could thus be a tool for investment both to hedge risk and to make profits.

Even though gold's historic importance has diminished dramatically and markets in gold are relatively minor, compared with foreign exchange, bonds and stocks, gold continues to hold a distinctive place in some economic imaginations. In this paper, I argue that because of gold's particular historical position, within Europe and European institutions outside of Europe, as currency, adornment, sign of political power and former anchor of the global financial system, the presence of gold as a material substance does particular kinds of political and cultural work in contemporary finance. This work might at first seem to be opposed to the kind of work denoted by the term 'speculation', but a closer look shows a more complex relationship, including instances of what I am calling 'speculative substance' as a technology for channelling value. The paper explores this in two cases: (1) controversies surrounding what should be done with the gold that is held in central banks as part of the sovereign wealth of nation-states (2) A split between markets for 'physical gold' and other financial assets that are based on gold, such as gold exchange-traded funds (ETFs).

In the recent anthropological and sociological literature on 'cultures of finance', scholars have begun to attend to the instances of material embeddedness as a constitutive feature of markets, where formerly that embeddedness might have been seen as vestigial or at least anomalous (Beunza & Stark, 2004; Çalişkan, 2010; Ho, 2009; Zaloom, 2006). This approach has been hugely beneficial for understanding contemporary capitalist markets, including the recent crisis, and has both contributed to theoretical discussions within the fields of anthropology and sociology, among others, and to public debate about markets, financialization, crisis and the production of inequality (Appel, 2014; Graeber, 2011).

Within this literature, particularly in the social studies of finance school, we find a methodological attention to the financial instruments and technologies as 'material-semiotic actors' (Haraway, 1991; Muniesa, 2007) that operate independently of intentions and that emerge through their interaction with other actors. As John Law has put it in his discussion of the material semiotics underlying the actor-network approach

> We are no longer dealing with construction, social or otherwise: there is no stable prime-mover, social or individual, to construct anything, no builder, no puppeteer … Rather we are dealing with *enactment* or *performance*. (2007, p. 13, emphasis in original)

This approach finds application in the 'performativity' school of economic sociology (Çalışkan & Callon, 2009; MacKenzie, 2008; MacKenzie *et al.*, 2007) and in an orientation towards the pragmatics of market technologies such as high-frequency trading, prices, visualization software and compound interest discounting (Deringer, 2017; MacKenzie *et al.*, 2012; Muniesa, 2007; Pryke, 2010). My work draws on this approach but explores gold – a physical commodity, and one frequently seen as vestigial or otherwise negligible to contemporary finance – as itself a technology that contributes to the enactment of financial markets (Truitt, 2018). In particular, gold brings together the work of speculation and that of physical substance in the channelling of value.

This paper approaches this integrative work of gold as simultaneously calculative and ethical. Gold acts as a financial technology in many ways. Like other commodities, it provides a basis on which to manoeuvre through expectations of future prices, institutionalized as futures, options or forwards; as a physical object that needs to be mined, refined, assayed, transported and stored, it becomes the object for calculation over 'fundamentals' (supply and demand, mostly); its more-or-less predictable relations (direct or inverse) to other assets or factors like currencies, interest rates and the stock market open further possibilities for buying and selling long and short (in expectation of the price going up or down, respectively). At the same time its dense and often ambiguous historical associations situate it as an ethical project, specifically engaging questions of what real value is and how humans should treat it.

This paper focuses on how gold as a physical object moves in financial markets, in what is known by many market participants as 'the gold space'. Gold acts today in financial markets as an ambiguous moral and calculative actor, whose material properties signify both solidity and speculation.

Notes on methodology

The paper emerges out of a larger research project focused on gold as a physical object across several different sites within mining and gold finance. The project is motivated by the following question: what difference does the physical substance of gold make, in interaction with other kinds of assets linked gold, such as mining equities, gold futures and options and gold-backed ETFs? The project thus interrogates the relationship between materiality and value and how that relationship changes in gold extraction, processing and circulation. It includes two mining sites (Marmato, Colombia; El Cubo, Mexico) and participants in gold markets in New York, London and Boston. Fieldwork includes over 70 semi-structured interviews with participants in these different sites, including miners, mining executives, sustainability consultants, bullion bankers, ETF sales people, representatives of the World Gold Council (a membership organization of gold producers) and the London Bullion Market Association (membership organization of participants in the London physical market), commodities researchers, fund managers, central bankers and commentators on gold and finance (Ferry, 2016a, 2016b, 2019; Ferry & Ferry, 2017).

The project includes participant observation in the two mining localities and at conferences focused on gold and finance, meetings, presentations and launches by commodities analysts, and site visits to banks, member organizations and commodities research firms. However, in the sites of gold finance (from which the data for this paper come), the ratio of interviews to other methods of data collection was significantly higher. This is due in large part to the power differences between sites of gold extraction and gold finance. Barriers to entry to fund managers, member organization executives and commodities research firms were higher, and scheduling and physical access much more strictly controlled. This in itself is an important research finding. Furthermore, forms of communication including participation in webinars, email exchanges and telephone or Skype interviews also yielded important data, particularly considering the fact that much of the ordinary interaction in these financial worlds takes these forms.

In a short but influential article published in 1997, Hugh Gusterson reflects on the methodology of 'studying up' 25 years after Laura Nader's article 'Up the anthropologist' (1972) that, in Gusterson's words, 'argued for a critical … anthropology that would, in studying the cultures of the powerful along with the powerless, throw new light on processes of domination' (1997, p. 114).

Gusterson notes that studying powerful institutions and people requires an expanded methodological repertoire, which he terms 'polymorphous engagement'. He writes that

> Polymorphous engagement means interacting with informants across a number of dispersed sites, not just in local communities, and sometimes in virtual form; and it means collecting data eclectically from a disparate array of sources in many different ways. Polymorphous engagement preserves the pragmatic amateurism that has characterized anthropological research, but displaces it away from a fetishistic obsession with participant observation … polymorphous engagement also involve[s] an eclectic mix of other research techniques: formal interviews of the kind often done by journalists and political scientists; extensive reading of newspapers and official documents, and careful attention to popular culture, for example. (1997, p. 116)

One more word about methodology: As part of my research, I draw on the analysis of media and other cultural iterations. I take these forms as speech acts available for interpretation in conjunction with other forms of data. For instance, a video produced by the Deutsche Bundesbank, analysed, below should be seen as a motivated communication, drawing on historically produced semiotic material concerning gold, that is intended to produce certain responses with certain audiences, and that may or may not produce exactly those responses (Hall, 2001). It should not be read as the authoritative voice of the Bank, nor as a definitive characterization of complex gold imaginaries described in the paper, but as one semiotic bundle in conversation with others. The data for this paper come primarily from interviews and secondarily from these analyses.

Physical gold as 'speculative substance'

The term 'physical gold' denotes refined bars that are used either in investment or fabrication (of jewellery, coins and industrial applications), as opposed to mining company stocks, derivative contracts such as futures and options, and a new financial instrument called ETFs tied to the current price of gold. This category of physical gold, then, already indicates a special position for the material gold itself, as distinct from other financial assets linked to it.

The word 'speculation' comes from the Latin verb 'speculari' to spy out, observe, watch, or examine. According to the *Oxford English dictionary*, most of its early uses centred on speculation as the faculty of sight, usually with the implication of intelligence, watchfulness or careful consideration. By the sixteenth century it could be used in a negative sense to suggest flimsy reasoning or conjecture. In the late eighteenth century it acquired a temporal cast, implying anticipation and in this same period was first applied in the area of economics to mean 'The action or practice of buying and selling goods, land, stocks and shares, etc., in order to profit by the rise or fall in the market value, as distinct from regular trading or investment' and in this sense it also acquired a connotation of risk, particularly the chance of great profit or loss (*Oxford English dicti*onary, 'speculation', definition 8).

This use of the term 'speculation' folds together several earlier aspects of its meaning, including anticipation of the future, watchful consideration and calculation, and uncertainty, lack of substance, or even falsity. Defined in this way, the concept of speculation appears to exclude substance and materiality. Speculation seems to fall on one side of a dichotomy between substance, the material world and real value, on the one hand, and numerical calculation, uncertainty and falsity, on the other. The idea of speculation as a material practice or one rooted in substance in this sense might then look like a contradiction in terms. Notably, this notion of speculation as distinct from and opposed to the material world also occurs within current social scientific and popular analyses of the preconditions of the global economic crisis of 2008–2009 that (with good reason, in many cases) point to the proliferation of financial instruments and derivatives (Lépinay, 2011; Lee & Lipuma, 2004; Tett, 2010), a privileging of shareholder value over productive capital (Ho, 2009) and the idea that risk is a manageable and quantifiable force (Ouroussoff, 2010; Zaloom, 2004).

A few recent works have considered speculation in new ways, beyond the conventionally defined sphere of financial professionals in the Global North (Bear, 2015; Weszkalnys, 2015) and in ways that challenge assumptions about what counts as licit and illicit moral and economic projects (Bear *et al.*, 2015). These analyses have also tended to break down the presumed distinction between speculative and material practices, as in Gisa Weszkalnys' discussion of 'the substance of speculation' in her article on oil exploration and potentiality in São Tomé and Principe. Weszkalnys expands speculation *beyond* the domain of finance to look at how 'liquid samples, drilling cores and other geophysical materials give [speculation] substance' (2015, p. 617). My deployment of the term 'speculative substance' brings Weszkalnys' analysis *back* into what are conventionally recognized as financial domains. In oil exploration, speculation becomes substantial through exploration technologies such as drilling. In central banking and private and institutional investments, speculation also can be made substantial through gold. Gold as speculative substance acts as a technology of imagination that straddles the seemingly opposing poles of solidity and speculation, and in doing so, opens up spaces of accumulation.

A very brief history of gold and finance

An approach to the pragmatics of gold as an actor in mining and finance might seem to reduce the importance of its history, by framing that history as foundational in the ways described by Law at the beginning of this essay. However, I would argue that the historical context of gold's valuation provides the material-semiotic ground for its use in contemporary expressions of the ambivalence surrounding finance and particularly what is thought of as 'speculation'. The sedimented history of gold as coin and reserve currency, as well as material for ceremony and adornment adds to its performance in contemporary spaces of finance. That is, gold arrives as a material-semiotic actor in each interaction, but it does not do so each time from scratch.

It is worth noting that these details about gold's past were frequently invoked by many of those (including some of my research subjects) who wish to perform and ratify gold's status as holder of or manifestation of real value. Many popular and scholarly discussions of gold's history play a part in this performance, particularly such texts as Timothy Green's *The ages of gold* (2007) and Peter Bernstein's *The power of gold: History of an obsession* (2000). Les Field writes that works in this genre 'tell a story that reiterates and reifies the unity between the history of gold and the history of coinage and money because of gold's unique physical character, which consequently erases all non-Western uses, understandings, and elaborations of gold' (Field, 2019, p. 165). Indeed, these works are notable for the emphasis on the physical properties of gold, contributing to a sense of inevitability in its monetary and symbolic value. It is not that these histories are incorrect, but they presume a near-tautological identity between the properties of gold and its value. My aim in this paper is thus different from that of these works: I wish to show gold's material-semiotic work within a broadly defined European or Euroamerican context, without suggesting that this is the only possible performance that gold can make. And indeed, in many cases gold has come into contact or confrontation with other modes of valuation with other histories (Field, 2012; Gandhi, 2013; Maurer, 2005; Mehotra, 2004; Moors, 2013).

Gold has been mined for thousands of years and was first used as currency, that we know of, in ancient Lydia (in Turkey) around 600 BCE, though it had been used as a sign of power and wealth for centuries before that (Green, 2007). Some of its physical properties – weight, malleability, lustre – probably made it especially apt for use as money and object of status. Its relative geological scarcity also contributed to this aptness – although, as we shall see below, 'scarcity' is also a historically constituted and managed category. Through much of the classical and mediaeval periods in Europe, gold played a relatively small role in economic circulation, though it was typically used in religious contexts, and displays of chiefly and kingly power. Its sources came primarily from Africa and Asia and the use of gold coinage in Asia and the Islamic world (though that role falls outside of the scope of Europe) was considerably larger than in Europe. The voyages to the New World were in part motivated by a search for new sources of gold (and silver), to which the story of the legendary city of 'El Dorado' ('The Golden One') attests. The discovery of gold in Brazil in the early eighteenth century helped to change the global balance of power by financing European trade and increasing the reserve currency for an expanding financial system (Vilar, 2011).

In 1717 Isaac Newton, who held the position of Master of the Mint, established a fixed relationship between gold, silver and paper money, based on the premise that paper money must have a fixed mathematical unit (weight of gold) to which it referred. This gold standard was preserved with some periodic modifications until 1931 (Green, 2007). It formed the basis of the global monetary system with the Bank of England at the helm.

In the Great Depression, the Bank of England dissolved the gold standard, in the face of speculative attacks and international currency crises that put enormous stress on Britain's reserves. Most other countries followed suit, including the United States in 1933; this action put the nail in the coffin of the international gold standard (Ahamed, 2009). Monetarist economic approaches in general hold that the departure from the gold standard enabled the United States and other countries to recover from the Depression, by allowing central banks to manipulate the money supply to control prices (Bernanke & James, 1991). The dissolution of the gold standard had tremendous implications, as it allowed for the establishment of the Keynesian and later Friedmanian monetarism that underwrote the post-war financial system, though the effects on gold itself were buffered by the structure of the Bretton Woods agreement, to which 44 countries signed in July 1944.

As the world's first negotiated monetary system between sovereign nations, the Bretton-Woods agreement established the US dollar as the only global currency to which the currencies of all signatory nations would be fixed. In turn, the dollar was set at 1/35 of an ounce of gold, with a 'gold window' where countries and individuals could exchange dollars for gold.

The ending of the dollar's convertibility to gold in 1971 is broadly understood as one of the defining moments of contemporary capitalism, characterized among other things by a proliferation of financial instruments, pricing models and other technologies, including those that helped to bring on the 2008 credit crisis and by extension the near collapse of the global financial system and a serious global depression (Lépinay, 2011; Maurer, 2002; Tett, 2010).[2] Since 1971 when its convertibility with the US dollar was terminated, the price of gold has been notably volatile, with two 'bull markets' in the early to mid-1980s and in the 2000s. Gold went from $271.30 (nominal dollars) in May 2000 to above $1900 in September 2011 (and has since declined; the cumulative average for 2018 was $1,268.49 [https://www.kitco.com/scripts/hist_charts/yearly_graphs.plx, accessed 4 October 2019]).

The reasons for this rise are manifold and include limitations in supply, a rise in gold demand by emerging middle classes in China and India, the decline in stock markets, which tend to be inversely correlated with gold, the use of gold as a haven in times of financial uncertainty and panic, flat interest rates and monetary policies such as quantitative easing. And, of course, there is fierce disagreement about the relative weight of these different factors.

In this contemporary period (post-Bretton Woods), gold has an odd status in financial markets. It works in some ways like a commodity, similar to copper, oil, or wheat, which means that the 'fundamentals' of supply and demands are important features in helping to determine its price. Its listing on commodities exchanges also plays a role in how prices emerge, for instance through interactions between spot (current) and future prices. And in spite of the fact that the US dollar, still the most important reserve currency on the planet, is no longer pegged to a gold standard, gold continues to be inversely correlated to the dollar and to real interest rates (Erb & Harvey, 2013; Pukthuanthong & Roll, 2011).

In addition, the historical sedimentation surrounding gold as a physical object has meant that some investors consider it as either a hedge (an asset whose price moves in a different direction than other prices, and can therefore be used to minimize losses under conditions of volatility) or a haven (an asset that preserves or gains value in times of general crisis or downturn) (Baur & Lucey, 2010). Because of the cultural work in which gold is enlisted in many Euroamerican contexts, its physicality and physical qualities act as the tangible sign for integrity, security and enduring value and debates over the creation of new financial vehicles linked to gold perform anxieties over threats to these things.

Gold arrives into contemporary financial spaces as a post-currency, a material sign of integrity and intrinsic value (Ferry, 2016a) and also a sign of greed, illicit accumulation and risk. In stories of capers, heists and treasure hunts, such as the book and film *The treasure of the Sierra Madre* (Huston, 1948), gold figures as the elusive wealth that makes men act amorally, immorally, or insanely. In L. Frank Baum's *The Wizard of Oz* (as discussed by David Graeber [2002]), the 'yellow brick road' (the gold standard) leads to the Emerald City, a place characterized by illusion and fakery. In both of these examples, gold marks, stands for, or leads to illusion, not grounded, substantive value. This ambivalence in gold's semiotic performance underwrites its capacity to act both as a technology for speculation and for resistance to speculation. Furthermore, it does so through its physical substance. In what follows I will explore some ways in which gold, through its substance, participates in calculative and ethical projects to create and channel value.

'In the fortress': gold in central banks

The first area in which I explore these tensions between speculation and solidity concerns the holding and management of physical gold in central banks: that is, banks that both hold national reserves and set national monetary policy. These two primary functions of central banks provide the ground over which these tensions play themselves out.

Gold's work as sign of enduring value and integrity, along with its history as currency, have made it a significant holding of many central banks. The holdings in these banks, and trends in central bank policy with respect to gold, are among the main concerns of those who seek to determine and predict price movements for gold. For instance, central banks' gold holdings or 'reserve-asset management' is one of the main research departments of the World Gold Council, the primary member organization of gold producers and fabricators, along with 'investment' and 'jewellery'. The stance and behaviour of central banks with respect to gold invariably earn a separate slot for a panel or panels in precious metal conferences and a separate PowerPoint presentation in the launches of reports on gold demand, such as the World Gold Council's Gold Demand Trends and the CPM Group's Gold Yearbook.

According to the World Gold Council, as of April 2016, the world's central banks held 32,843.2 tonnes of gold (Latest World Official Gold Reserves, published 6 April 2016, gold.org). The countries with the highest amount of gold reserves are, in this order, the United States, Germany, Italy, France and China. In the case of the United States and the European countries, this emphasis on placing sovereign wealth in gold likely stems from the periods of the two world wars, when the gold standard presided over a surge of globalization in finance and privileged nations that held large amounts of gold. China's gold reserves are a much more recent phenomenon. One research subject, an expert in central bank policy suggested that China's purchase of gold for its central bank is a way of symbolically underwriting the renminbi as a global currency (even though there is no official relationship between gold and the renminbi).[3]

In an article in the journal *Cultural Geographies*, Erica Schoenberger (2011) draws on diverse archaeological and ethnohistorical sources to show how the geological scarcity of gold has been enhanced at certain moments through artificial restriction of its supply. Schoenberger points particularly to the necropolis of Varna in what is now Bulgaria, which dates to the fifth millennium BCE, in which large quantities of gold were sequestered in what she describes as 'self-cancelling supply' (p. 7). That is, by burying gold, Varna's chiefs simultaneously demonstrated their power, and removed gold from circulation. Schoenberger concludes her discussion by noting how the pattern of sequestering gold by burying it in tombs continues into the twentieth century with the practices of holding gold reserves in central banks. She writes, 'From the graves of Varna to the underground vaults of the Federal Reserve Bank of New York, the history of the social value of gold is in part a history of different ways of creating artificial scarcity' (p. 19).

The World Gold Council, in its explanation of the Central Bank Agreements that have been in operation in recent decades, also recognizes this function of gold reserves, stating that:

> Collectively, at the end of 2015, central banks held around 31,400 tonnes of gold, which is approximately one-fifth of all the gold ever mined. Moreover, these holdings are highly concentrated in the advanced economies of Western Europe and North America, a legacy of the days of the gold standard. This means that central banks have immense pricing power in the gold markets.
>
> In recognition of this, major European central banks signed the Central Bank Gold Agreement (CBGA) in 1999, limiting the amount of gold that signatories can collectively sell in any one year. There have since been two further agreements, in 2004 and 2009.[4]

We can see gold's performance as an anchor for political power and social value particularly clearly in the issue surrounding the transfer of 50 per cent of Germany's gold from foreign vaults back to the Deutsche Bundesbank vaults in Frankfurt. At the launch of the 2015 CPM Group Gold Yearbook, one of the most important annual publications on gold demand, held at the New York Bloomberg offices on Park Avenue at 42nd Street, Henner Asche, Deputy Head of Markets at the Deutsche Bundesbank (Germany's central bank) reported on a decade-long process to bring gold held in New York, London and Paris to Frankfurt. This movement was in response to public concerns that a large percentage of Germany's gold was not held in the country, as is true for many central banks.

Mr Asche described the process by which the gold was re-melted into bars that met the London Good Delivery Standard, an action that was needed because the bars had been first cast before the establishment of the London Bullion Market Association, the organization in charge of the current Good Delivery Standard, in 1987 (http://www.lbma.org.uk/the-london-bullion-market, accessed 24 May 2016). He further remarked, rather drily, that the gold was assayed by an independent laboratory 'to make sure that the German gold does not mix with other gold', before being stored in Frankfurt's vaults.

As the debate over German gold shows, how much of their financial reserves a country should hold in gold is a matter of fierce debate, turning on questions of national stability and sovereignty. These issues have made central bank gold policy rather sensitive, so that the publicity surrounding gold policy decisions is carefully managed. One economist in the market operations department of a central bank noted that decisions about gold have to be referred to the bank's directors, whereas equivalent decisions for other bank assets can be handled at a lower level. Furthermore, there is increasing concern in some European countries (particularly Switzerland, the Netherlands, Germany and France) that the gold reserves for the country be actually physically present within the country. For instance, in 2013 politicians from the right-wing populist Swiss People's Party launched a 'Save our Swiss gold' referendum that would require that the Swiss National Bank maintain at least 20 per cent of the gold reserves within the country. The Swiss National Bank campaigned against the referendum, which lost on 30 November 2014, received 44 per cent of the votes.[5] The Netherlands received similar pressure to repatriate and quietly moved 122 tonnes of gold from the NY Federal Reserve to Amsterdam in November 2014.[6] Marine Le Pen, of the right-wing National Front party in France sent a public letter to the Banque de France, also in November 2014 demanding 'Urgent repatriation on French soil of all of our gold reserves located abroad'.[7]

This public concern is based at least partly on the memory of hyperinflation of the interwar years in Germany and the economic devastation of both world wars, of which one sign was the liquidation of national reserves. At the same time, while rooted in particular historical concerns, in its current version, it has a strongly nativist flavour, linked to the German, Dutch, Swiss, or French nation (note the very term 'repatriation' and the use of phrases such as 'French soil' and 'Save our Swiss gold'), and tends to be held by those on the right or extreme right of the political spectrum. The demands for gold repatriation described above all came from right-wing populist parties in their respective countries.

In the presentation at the CPM Group launch Henner Asche was reporting, not so much to the immediate audience (who were amused and mildly disdainful of this concern), as to the media, that the Bundesbank is proceeding to bring its gold to Germany, along with a categorical statement that the bank 'do[es] not transfer the gold to Germany because we have doubts about whether the gold actually exists'.

Mr Asche concluded his presentation by recommending a short film posted by the Bundesbank on YouTube about the gold in these vaults as a visual record of the successful relocation of the gold to Germany. https://www.youtube.com/watch?v=jafL5DiEFN8 (accessed 10 April 2015). Clearly produced with the idea of assuaging the concerns of those who do doubt that the gold is really there (concerns that my interviewees tended to discount and even to ridicule), this video merits closer observation, since it brings together many of the ideas surrounding gold as a sign of real value and an anchor for the nation-state. (https://www.youtube.com/watch?v=jafL5DiEFN8, all translations of this video are by Tamar Forman-Gejrot). It is clearly produced as a promotion or showcasing of the relocation effort; in it, an executive at the Bundesbank notes that 'After the relocation is finished in 2020, 50 per cent of the gold reserves will lie in domestic vaults, 37 per cent at the Federal Reserve in New York and 13 per cent at the Bank of England in London'.[8]

The video begins by showing different symbols for gold against a background of the periodic table, itself coloured gold. The German word 'gold' (which is the same as the English word), Au (its chemical name), and the cell from the periodic table that also includes its atomic weight (196.97) float across the screen, interspersed with brief pop-up videos of Germans (a boy, a younger man, an older man and a woman) who are clearly responding to an interviewer's question along the lines of 'why does gold fascinate you?' The younger man says, 'It's a symbol of German stability'; the older man says, Well, gold fascinates me because it always has value in itself, and always retains value. The fact that these German subjects responded in this way (and even more that these quotations were selected by the Bundesbank for their video intended to alleviate public concerns about the presence of German gold) demonstrates an actively performed relationship between gold, value and the German nation.

The video goes on to inform us that 'the German gold reserves are a result of the economic miracle after the Second World War', noting that other countries settled their trade deficits with Germany by means of gold. Jans Weidman of the Bundesbank explains the current plan to move half of the German gold back to Frankfurt in terms of changes in Europe. There is no longer a need to hold gold away from Germany to keep it safe, and in the case of the German gold in the

Banque de France, there is no need for that gold to be there to settle accounts, since both Germany and France use the euro.

Along with this reasoned explanation for the transfer of approximately 50,000 bars of gold to Frankfurt (a transfer that was completed in 2018), the video presents imagery that emphasizes the safety and security not only of the vault in Frankfurt, but of the Federal Reserve in New York, where 37 per cent of Germany's gold will remain. Lingering footage of the thick, fortress like walls and barred windows give an impression of great solidity, and extended shots of the careful weighing, notation and transport of gold bars (generally by middle-aged white men) suggest probity, responsibility and careful procedure.

These impressions are fortified by two final moments in the video that link gold explicitly to the German nation-state: Bundesbank executive Carl-Ludwig Thiele states, with a slight smile, looking directly at the camera, 'This is the gold of the Germans and we are responsible for handling it sensibly and we carry out this duty'. The narrator then concludes, over a shot of the vault: 'The vault of the German Central Bank in Frankfurt. The storage containers are custom-built. This is the new home for the German gold'.

A related source of tension to that of the physical presence of gold in central bank vaults, is the leasing of gold by central banks to large commercial banks, who then lease it to their clients. The largest central banks, particularly the Banque de France, Bank of England and US Federal Reserve, lease physical gold to large commercial banks, who then sell it to gold fabricators and investors, and buy the equivalent amount back from the market once the lease is up, following agreed-upon (but no longer publicly available) gold forward rates (GOFO).[9] One market operations executive whom I interviewed described how the central bank for whom he works engages the practice of leasing gold to commercial banks and to other central banks, but does not say much about it publicly for fear of raising protest from those who might find this practice risky or undermining of *the* sovereignty and power of the national reserves. The Central Bank Agreements described above include provisions that signatories not increase their gold leasing during the period of the agreement. Although some argue that gold leasing depresses gold prices, others assert the contrary – gold leasing follows the gold price so that banks lease more gold in a bear market than a bull market (http://www.kitco.com/commentaries/2016-05-06/Gold-Leasing-Explained.html, accessed 25 May 2016) This provision may then speak more to anxiety about the physical presence of gold in the vaults than to price protection (http://www.kitco.com/ind/AuthenticMoney/2014-05-21-Will-Central-Banks-Need-To-Buy-Gold-Back-From-The-Market.html, accessed 24 April 2016).

In times of crisis gold vaults can offer even more of a sense of security. One of my interviewees, a former Federal Reserve employee, described how during the attacks on Lower Manhattan on 11 September 2001, people sought shelter in the Reserve's gold vaults. From one perspective, one could imagine this as purely pragmatic, given the high security and well-defended walls of the vaults. But this feeling returned later, during the financial crisis of 2009–

2010, when the threat was less immediately physical. As my interview subject said, 'I felt like we were in the fortress during the crisis. We were *managing the gold reserves*'. He emphasized the final phrase 'managing the gold reserves' in a slightly hushed, mock-elevated tone, distancing himself a little bit from complete allegiance with the idea of 'managing the gold reserves' as a form of national security.

Importantly, many central bankers would like to have less to do with gold than they do. Central bankers tend to be monetarists; that is, they believe that the security of currencies and the health of economies should be achieved through the careful management of the money supply. After all, these are the same people described in Douglas R. Holmes' book *Economy of words* (2013), who as he argues, create monetary regimes through communicative practice. And like other market actors described in this paper, they tend to oppose 'words' to gold. One informant who works as a representative for the gold industry, focusing particularly on central banks and gold reserves, described his difficulty in getting central bankers to talk about gold, in part because they see it as running counter to their own sense of expertise in managing the economy. Indeed, in 2016, the World Gold Council ran an 'Executive Education Programme in Gold Reserves Management' for central bankers and executives of finance ministries, held at the Judge Business School of the University of Cambridge (https://www.jbs.cam.ac.uk/execed/custom-programmes/executive-programme-in-gold-reserves-management-2016/, accessed 5 October 2019). The director of the programme (I'll call him Dipek) noted in an interview that it was intended not only to provide training in how to manage gold reserves, but also to stimulate interest in gold among participants. His successor (Christopher) later said in an interview that the main purpose of the World Gold Council was to 'speak on behalf of gold', and this was clearly one of the purposes of the programme. In discussing the trend away from gold and toward monetary policy, Dipek remarked that 'we've switched from a gold standard to a PhD standard. Who knows if it is going to work any better?'

My interviews confirm that in many cases, central bankers perceive the public pressure to maintain gold reserves and to ensure that the gold is in vaults within the country as reactionary and irrational. Moreover, the issues surrounding gold reserves can cause problems for those in charge of them. As one interviewee pointed out, 'There's only career risks in gold for central bankers'. Another interviewee, the former chairman of a central bank that does not hold large amounts of gold, told me, 'We don't have a lot of gold, but when I talk to other bankers, we think gold is a bit of a nuisance. We wish we could get rid of it'. This 'nuisance' comes from the fact that it needs to be stored and monitored and that it cannot be used to generate revenue, at least not without risking public blowback of the sort discussed above. Nevertheless, central bankers must, at least nominally, respond to the public pressure to keep the gold they have (quite apart from the fact that those banks that are signatories to the Central Bank Agreement are restricted in how much they can sell) and to be rather circumspect about any gold leasing or other 'active management' they do with their gold.

These anxieties over the activities of central banks with respect to gold highlight the ways in which the presence of physical gold seems to provide a counterweight to speculative practice, perceived as potentially threatening to the nation-state as a territorial and transtemporal entity.

Gold, 'physical' and 'paper'

My second example concerns a distinction made by some of my research subjects between physical gold and a contrasting category of 'paper gold'. Paper gold includes all those avenues for making profits or preserving wealth by means of assets that are linked to gold, without actually owning the metal itself. That would include investing in mining companies, participating in futures and options markets and investing in ETFs (see below).

This distinction is emphasized more strongly by some participants in gold markets than by others. As discussed above, the research project on which this paper draws focuses on participants in gold markets who are differently situated with respect to the investment of what is usually referred to as physical gold or 'the physical market'. Some research subjects work primarily with physical gold, while others work with other assets. Not surprisingly, perhaps, those positioned closer to the physical market are more likely to see a fundamental difference between owning the actual gold coins and bars, and 'gaining exposure' to gold through other assets.

While physical gold is a widespread and fairly neutral term, 'paper gold' is typically used by those who see a big gap between the physical asset and other assets. The term usually has a moral valence, indicating falsity and flimsiness. As I will discuss below, it occupies some of the same normative terrain as the concept of speculation. Thus, those who use the term paper gold are generally more likely to invest in physical gold or to make their living from physical investors and often draw the distinction between physical gold and paper gold as one between actual value and the promise of value. This distinction emerges out of a much older one between 'commodity money' (as in currencies based on gold or silver) and 'credit money' or 'token money' (in which money is issued by some central authority such as a treasury or bank and constitutes a claim on that authority, signified by the term 'legal tender'; often in these situations some object, like a piece of paper, is thought to act as a 'token') (Caffentzis, 1989; Maurer, 2005). For these people, the tangible possession of physical gold itself is more trustworthy than a 'paper promise' on a bank or government (Ferry, 2016a). The term 'fiat currency', which can be translated as 'let there be money', and which tends to be used by those who favour gold as a currency, also emphasizes the communicative nature of non-commodity or token money.[10]

Debates over ETFs centre on this division between physical and paper gold and therefore merit particular attention. In the mid-2000s a new tool for investment in gold was introduced called; through brokers, investors can buy shares in these financial vehicles that track the price of a given commodity, equity, or sectors of the market through the purchase of these assets by banks designated as an 'authorized participant'. ETFs for other assets have been in existence since the early 1990s, but in 2005 the World Gold Council (the member organization for participants in the physical gold market, including mining companies, refiners, fabricator, central bankers and bullion banks) worked with State Street Global Advisors, HSBC and Bank of New York to put together SPDR® Gold Shares, commonly referred to by its stock ticker abbreviation 'GLD'.

Previously, investors could only invest in gold by buying, and then paying to store physical bars or coins. The invention of ETFs allowed investors to purchase share in a basket of gold and to buy and sell these shares throughout the day. However, as we shall see, these instruments have become a focus for particular anxieties concerning the continuing creation of financial vehicles and instruments and their relationship to so-called 'real value' as embodied in tangible objects.

This debate between those who trust only physical gold as a repository of value and those who see gold-backed assets as one among a range of tools for investment is highly charged, both politically and morally. Those who believe in the primary value of physical gold tend towards a mistrust of either the monetary policies of central banks or the financial industry, or both. On the other hand, those with a broader appetite for gold-based assets sometimes see the advocates of physical gold as hidebound, backwards, or irrational. Often these people invoke religious imagery to describe the physical gold adherents, as those who 'worship', 'idolize' or 'bow down to' gold. In my interviews, both with those who invest primarily in physical gold and those involved in other assets such as ETFs and mining equities, the term 'barbarous relic' was used to denote gold (or, when used by a proponent of physical gold, to disparage those who do not recognizes physical gold superior and more enduring value). This use of the term is an interesting slippage from the original usage by John Maynard Keynes to describe, not gold itself, but the gold standard. Given this, one might expect the phrase 'barbarous relic' to have died out; its endurance in a post-gold-standard age may be due to its associations with the putatively irrational religious practices of some earlier epoch.

As in the case of central banks described above, the World Gold Council sees itself as 'speaking on behalf of gold', but doing so in a way that is backed by research and that operates within mainstream practices in finance. Gold's reputation as an atavistic form of value poses a problem for the World Gold Council, a member organization of gold producers, refiners and fabricators that is charged with providing research about and stimulating demand for physical gold. The WGC takes as part of its brief the attempt to bring gold into more mainstream economic discussions, in part by sponsoring research. According to some of my WGC interviewees, this includes steering the conversation away from what they see as an excessive dogmatism concerning gold. One interviewee from the WGC stated that: 'There's a deafening amount of opinion about [gold] but little actual research … People can be very dogmatic about it. We [the WGC] try to provide a set of parameters for how to think about gold'.

In the particular context of GLD (which, as stated above, was invented by the WGC to help investors gain exposure to gold), the WGC wrote a business school case study to compare physical gold and GLD as investments. The case study had a double intent: to promote discussion of GLD in business schools, and to act as a wedge for the entrance of gold as a subject for academic research and discussion in economics and finance. In an interview in September 2014, a business school professor who had taught the case remarked on the challenge it posed: 'Can you convince professional money managers from an investment perspective? If so, is it still physical, or would they be able to go with a paper instrument [such as GLD]?'

The World Gold Council, through GLD, through its investment department, and through case studies such as the one on gold and GLD, attempts to bring what the professor called 'hard data' to the case of gold. This perspective sees the cultural valences of gold's material qualities as either distracting or distorting of the value of gold as a financial asset and to reduce the perceived division between physical and paper gold. So far, they have only been partially successful, and indeed, have faced criticism from their own members for introducing GLD in the first place. Mining companies, in particular, have charged that GLD diverts investment from mining equities. In September 2018 at the Denver Gold Forum, a non-profit organization that helps link mining companies and mining investors, John Reade, chief market strategist and head of research for the WGC, ran a Q and A session on the current state of the gold market. He received a semi-hostile question from the floor concerning GLD. Though I did not see who asked the question, it seemed to come from a representative of a mining company (and therefore a member of the WGC). In expressing that in creating GLD, the WGC has pulled the rug out from under its own membership, the speaker said

> I think the World Gold Council should focus on jewellery. ETFs can be counterproductive. I like focusing on female greed. I think you should go back to your strategy of 20 years ago [of focusing on jewellery rather than ETFs].[11]

From this perspective, jewellery [like bars and coins] does not compete with mining equities because it is physical gold rather than a financial vehicle created in relation to gold [paper gold] – though the WGC might respond that ETFs are backed by physical gold and therefore increase aggregate demand more than that they undercut equities. One of my interviewees, who worked not for the WGC but for a prominent hedge fund that had invested in ETFs described the effect of ETFs on the physical gold market in the following way:

> [ETFs] created a bunch of demand for … [mining companies'] product. What was bigger? The slice that was taken out very clear, but I think it is a net

> benefit. It's like if I have a lake in front of my house, and it rains, and then I take out a cup of water. My feeling is, that the water that went in is a lot more.

In the fallout from the financial crisis of 2009–2010, physical gold became a more popular investment, and the price rose. This is consistent with past performance and the general perception of gold as inversely correlated to the stock market and more pointedly, as a 'haven' in times of crisis (Baur & Lucey, 2010). At this time, investment in GLD and other gold ETFs also boomed. When asked to characterize those who invest in ETFs, my interviewees gave different answers. On the one hand, as one interviewee pointed out, an ETF is 'the next best thing to physical' for some institutional investors. However, when the price of gold is improving, this interviewee noted, investors buy in because they are 'speculating'. Those who invest in ETFs in a rising market might be looking for ways to make a profit rather than seeking insurance. That is, where physical gold as investment attracted those interested in insurance and 'wealth preservation', ETFs appealed to those who more oriented towards what we might see as conventional financial activity – moving between assets to accumulate profits. Those who invested heavily in gold ETFs after the crisis, such as George Soros and John Paulson, are more likely to be described in contemporary vocabulary as 'speculators'. For instance, an article in the investors' newsletter Seeking Alpha on 15 August 2016 notes that:

> Ironically, an increase in the amount of physical gold held by GLD and the other gold ETFs is indicative of increasing *speculative demand* for 'paper gold', not physical gold … .[p]hysical gold only ever gets added to GLD's inventory when the price of a GLD share (a form of 'paper gold') outperforms the price of gold bullion … . *Speculators* in GLD shares and other forms of 'paper gold' (most notably gold futures) tend to become increasingly optimistic as the price rises and increasingly pessimistic as the price declines. That's the explanation for the positive correlation between the gold price and GLD's physical gold inventory.[12]

The distinction between so-called physical and paper gold also frames concerns about geopolitical power. An important aspect of gold demand over the past 15 years is the rise of demand for physical gold from Asian countries, particularly China and India, where emergent middle classes and changing regulations have opened huge markets. According to the World Gold Council, Chinese demand for gold totalled 981.5 tonnes in 2015, while demand in India totalled 864.3 tonnes. This demand comes both from investment and jewellery purchases, such as jewellery given to women at Diwali or for weddings. Both Diwali and the traditional wedding season (as well as Chinese New Year) are typically included in reports on Asian demand in New York and London, as well as in Asia. The emergence of large middle classes in these two countries certainly have played a significant role in increasing demand.

In this context, the dividing line between physical and paper gold mapped onto a geographic division between East and West for a number of my interviewees and became a touchpoint for anxiety about declining geopolitical power. For instance, I conducted an interview in October 2014 with a British gold fund manager who said:

> People in Asia know that their governments are unreliable … here for some reason we think governments are there to protect us and that all our politicians are wonderful people and gold is a 'barbarous relic'. And meanwhile in the East they are hoovering up the real stuff. You can draw a line between Johannesburg and Dubai – that's the boundary between paper and physical, and that's where all the refining companies are.

This quotation encapsulated how physical and paper gold shapes particular geographic imaginaries. These are suffused with anxiety about excessive trust in governments and mistaken distrust of gold's 'barbarous' and atavistic status.

Physical gold and instruments like ETFs act as contrasting technologies of imagination that bring substance and speculation together, but in different ways. Gold as speculative substance does the work of calculation, by allowing investors to manoeuvre between different angles of exposure to gold's price, and it also does ethical work, by differentiating between those who (from one point of view) rely on substance or those who do not or (from another point of view) between those who understand contemporary finance beyond the 'barbarous relic' and those who do not.

Conclusion: gold as financial technology

The two examples I have elaborated in this paper focus on different ways in which physical gold, including debates over its location and presence and its relation to 'paper gold'. Through these debates, I have explored two dimensions of gold as a technology of imagination that links speculation and substance. Speculative practice takes material form, on the one hand, through the prospective and retrospective constitution of the nation-state by means of gold reserves, and on the other, through calculative movements between physical gold and other assets based on gold. At the same time, physical gold is understood by some as opposed to the perceived uncertainties and even dishonesties of speculation. Concern over the presence of physical gold in central bank vaults, and normative discussions about the relative merits of investment in the physical market and ETFs turn on the opposition and also the unity between speculation and substance.

As a technology, physical gold is simultaneously calculative and ethical. It does so through its substance as a material-semiotic enactment. Beunza, Hardie and MacKenzie (2006) have argued compellingly that 'a price is a social thing', thus linking materiality and finance. This argument, characteristic of the social studies of finance approach in economic sociology, derives its motivation in part from the demonstration that financial technologies are also things. This paper takes up this point, reversing its direction. I have tried to show some ways in which an especially thingy thing, gold – the boundedness, distinction and intrinsic character of whose material qualities are constantly underscored – is also a financial technology. Seeing gold in this way allows us both to understand more clearly its particular role in certain financial spaces and gives us a broader repertoire for thinking through materiality and finance more generally.

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Notes

1 I have had some difficulty finding the right geohistorical term for the complex web of imaginaries surrounding gold to which I refer, and have settled, not entirely comfortably, on 'Euroamerican'. I am not using the term as an ethnonym, as a stand-in for 'white', per a 2008 discussion thread in the blog (formerly known as) Savage Minds (https://savageminds.org/2008/03/24/no-but-seriously-euro-american/); rather, following Edwards, I use the term to 'refer to discourse rather than people, and to idioms rather than places' (2006, p. 132). I aim to describe some of the ideologies and imaginaries concerning gold that originated in Europe and have circulated in (though not only in and not everywhere and at all times in) its settler colonies in the Americas. Implied in my choice of field as 'Euroamerican' is the fact that I do not attempt to describe how gold is valued and imagined in histories outside of Europe (India, indigenous Americas, etc.). This is not to say that I don't see these traditions as entirely independent from those I do describe; I separate them heuristically in order to be able to specify my descriptions of how gold is valued.

2 It is perhaps not surprising that Gillan Tett's description of 'How Wall St. greed corrupted its bold dream and created a financial catastrophe' is titled *Fool's gold* (Tett, 2010).

3 However, In April 2016, the Chinese government launched a twice daily gold 'fix' (an auction to set a benchmark price) in renminbi on the Shanghai Gold Exchange, to compete with the London Gold Fix, which is set in US dollars (http://www.ft.com/cms/s/0/e2d5b638-0610-11e6-9b51-0fb5e65703ce.html#axzz4IHLMVUyv, accessed 24 August 2016).

4 (https://www.gold.org/reserve-asset-management/central-bank-gold-agreements, accessed 23 April 2016).

5 (https://www.reuters.com/article/us-swiss-gold/swiss-goldreferendums-support-falls-short-of-majority-poll-idUSKCN0ID1MW201410 24, accessed 21 November 2017; https://sputniknews.com/business/201412011015366444/, accessed 21 November 2017).

6 (http://www.zerohedge.com/news/2014-11-21/gold-repatriation-stunner-dutch-centralbank-secretly-withdrew-122-tons-gold-new-york, accessed 21 November 2017).

7 (http://www.zerohedge.com/news/2014-11-25/here-comes-france-right-wing-leader-marine-le-pen-demands-central-bank-repatriate-fr, accessed 21 November 2017).

8 In fact, in February 2017, the Bundesbank reported that it would complete the transfer ahead of schedule at the end of 2017 (https://www.bloomberg.com/news/articles/2017-02-09/germany-gets-its-gold-back-faster-and-aims-to-finish-job-in-2017, accessed 21 November 2017).

9 According to the London Bullion Market Association, which sets the Gold Forward Offered (GOFO) rate, 'The Gold Forward Offered Rate is an international standard rate at which dealers will lend gold on a swap basis against US dollars, providing the foundation for the pricing of gold swaps, forwards and leases'. https://www.quandl.com/data/LBMA/GOFO-Gold-Forward-Offered-Rates-GOFO (accessed 24 August 2016).

10 My aim in this paper describe some ways in which gold enacts particular theories of money in certain areas of contemporary finance, more than it is to identify the actual relation between gold and money. However, it is worth noting the relation of this discussion to current debates over commodity and token money. In his book, *The nature of money*, Geoffrey Ingham (2004) seeks to undo this narrative by emphasizing the inherently sociological nature of money, such that (as stated in an article immediately preceding the book, '[r]egardless of any form it might take, money is essentially a provisional 'promise' to pay' (Ingham, 2004, p. 15). David Graeber also undertakes a similar project by demonstrating that credit and debt are ancient institutions entirely compatible with coinage and commodity monies (Graeber, 2011). In a recent article for the *Journal of Cultural Economy*, Chris Vasantkumar (2019) acknowledges these arguments but, using the Peircean concept of 'rhematization', draws attention to the continued social relevance to the idea of 'intrinsic value' in contexts of token money (Vasantkumar, 2019). Working in a parallel vein, Asif Agha proposes a methodology and set of questions for thinking about forms of money and 'money conduct' that is not primarily constrained by the commodity/token divide (Agha, 2017).

11 Note also the linking of gold demand not just to greed but 'female greed', thus capturing the ambivalences associated with gold as simultaneously more real and trustworthy than other forms of value and as inciting irrational and amoral or immoral desire.

12 (http://seekingalpha.com/article/3999595-increasing-speculation-papergold?auth_param=1delct:1br3oth:0bf64d7c85fe963829ee268ecfd601da&uprof=14&dr=1, accessed 24 August 2016, emphasis added).

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