

## David Hume and Irving Fisher on the Quantity Theory of Money in the Long Run and the Short Run

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### Introduction: Hume and Fisher as Quantity Theorists

The quantity theory of money, according to which the level of prices (the inverse of the purchasing power of money) depends on the quantity of money, is, as Mark Blaug (1995) remarked, the oldest surviving theory in economics, even though, as David Laidler (1991b) notes, it is always and everywhere controversial. Martin de Azpilcueta Navarro in 1556 (translated by Marjorie Grice-Hutchinson 1952) and Jean Bodin in 1568 (translated in Monroe 1924) invoked the inflow of gold from Mexico and Upper Peru into Spain to explain the rise of European prices in the Sixteenth Century, although Thomas Guggenheim (1989, Chapter 2) is rightly skeptical of efforts to read quantity-theoretic reasoning into such much earlier writers as Xenophon or the Roman jurist Julius Paulus. Notwithstanding the substantial body of pre-classical monetary discussion, it makes sense to take David Hume's *Political Discourses* (1752a, b, c, d) as the starting-point for the history of classical and modern monetary theory, as is done by Arie Arnon's *Monetary Theory and Policy from Hume and Smith to Wicksell* (2011). As Guggenheim (1989, p. 35) points out, "The idea of a proportional relation between monetary mass and level of prices, which is so often associated with the quantity theory, originated with Hume." Milton Friedman began his 1987 *New Palgrave* article on the quantity theory of money (reprinted in Durlauf and Blume 2010) not with his own words, but with two paragraphs of quotation, one from Hume's "Of Interest" (1752b) and then one from Hume's "Of Money" (1752a). In his Nobel Lecture, Robert Lucas (1996, p. 661) referred to "the beginnings of modern monetary theory, in David Hume's marvelous essays of 1752, *Of Money* and *Of Interest*." Krugman, Obstfeld, and Melitz (2012, p. 1) open their international economics textbook by citing Hume's "Of the Balance of Trade" (1752c) as "the first real exposition of an economic model", although in keeping with the standard of history of economic thought in theory textbooks, they regrettably proceed to state that "Hume published his essay in 1758." That is literally true only because they do not say that Hume published his essay for the first time in 1758: "Of the Jealousy of Trade" was the only one of Hume's economic essays to first appear in the 1758 expanded edition of his *Political Discourses*. While by no means the first person to consider the effect of the quantity of money on the level of prices (e.g. Azpilcueta or Bodin) or to discuss balance of payments adjustment (e.g. Isaac Gervaise 1720 or Richard Cantillon in Monroe 1924, see Sekine 1973<sup>2</sup>), Hume's 1752 essays on real and

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<sup>2</sup> Sekine (1973, pp. 274-75) reports that Friedrich Hayek accused Hume of plagiarizing the international adjustment mechanism from Richard Cantillon (an accusation that Hayek later softened) and that Karl Marx and Friedrich Engels accused Hume of plagiarizing it from Jacob Vanderlint, but concludes against the validity of these allegations.

nominal quantities and on the automatic equilibrating mechanism stood out by their intellectual rigour and sophistication as well as by their influence on subsequent economists (starting with Hume's friend Adam Smith).

It is instructive to compare Hume's statement of the quantity theory with the theoretical and policy views of an outstanding figure in the later revival of the quantity theory of money, Irving Fisher, who agreed with Hume both that the long-run effect of a change in the quantity of money would be a change of all prices in the same proportion and that in the short run, monetary shocks cause temporary (but not negligible) fluctuations in real economic activity. Milton Friedman (interviewed in Parker 2002, p. 46) held that "Irving Fisher is without question the greatest economist the United States has so far produced ... His contributions not only through his monetary work and theory, but on real versus nominal interest rates or on index numbers, whatever you touch, his doctoral dissertation, they all were notable achievements."<sup>3</sup> Fisher was of course not alone in the revival of the quantity theory of money in the quarter century preceding the First World War: he justly shares the cover of David Laidler's *The Golden Age of the Quantity Theory* (1991a) with Alfred Marshall and Knut Wicksell, while among Fisher's American contemporaries David Kinley was noteworthy for empirical studies of velocity of circulation and Edwin Kemmerer for his application of the quantity theory to the gold exchange standard. But Fisher's monetary economics, like that of Hume, was recognized by contemporaries and later generations alike as a peak performance of its time, and Hume and Fisher shared a focus on the distinction between real and nominal quantities (real and nominal quantity of money for both, real and money rates of interest for Fisher) that contrasted with Wicksell's emphasis on the distinction between market and natural rates of interest.

Although Hume and Fisher shared core theoretical beliefs about the long-run neutrality and short-run non-neutrality of money, they differed in their views of the gold standard, paper money, and international adjustment. The more superficial differences of technique and exposition are due to the eras in which they wrote. It would not have occurred to someone in 1752 to write out the equation of exchange<sup>4</sup> or any other equation to express his views on political economy, or to represent expected change in the price level as a distributed lag of past price level changes (or, despite the isolated

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<sup>3</sup> Interviewed in the same volume (Parker 2002, p. 121), Friedman's long-time collaborator Anna J. Schwartz was "not impressed" with Fisher's debt-deflation theory of Great Depressions (Fisher 1933) "an an intellectual contribution." With regard to Fisher's writings in the 1930s, Friedman chose not to mention debt-deflation, instead stressing the agreement of Fisher (1935b) with Chicago advocacy of 100% reserve requirements on bank deposits and of expansionary monetary policy (Parker 2002, p. 46).

<sup>4</sup> According to Schumpeter (1954, pp. 314-315), John Briscoe wrote a kind of equation of exchange, without a velocity of circulation term, in his *Discourses on the Late Funds*, published in London in 1694, but no further use of such an equation is known until Henry Lloyd in 1771, still without a velocity term. See Humphrey (1986, p. 279).

precedent of William Fleetwood's *Chronicon Preciosum* in 1707, to compute a price index<sup>5</sup>). As part of his 1891 doctoral dissertation (published 1892, reprinted in Fisher 1997, Vol. 1), Fisher built a hydraulic model to simulate a system of equations for general economic equilibrium, which would have been unimaginable in 1752 (and was quite remarkable for 1891). More substantively, Fisher moved a derivative beyond Hume and emphasized expectations, building his analysis of nominal interest rates on the expected rate of change of the price level (more generally, relating the difference between interest rates in any two standards to the expected rate of change of the exchange rate between the two standards), whereas Hume had worked through the temporary and permanent effects of a discrete change in the quantity of money. Thus Thomas Mayer (1980, p. 92) comparing the opening paragraph of Hume's "Of Interest" with a passage from Friedman's AEA presidential address (Friedman 1968), found that "The only differences are that Hume, unlike Friedman, did not have the 'Fisher effect' available, and also talked about a high stock of money instead of a high growth rate." The most striking contrast between the monetary economics of Hume and Fisher is between their attitudes towards the gold standard, paper money, and the automatic international adjustment mechanism. Hume and Fisher understood how the adjustment mechanism works in much the same way (and in a way that differed from Adam Smith's view of price-taking by a small open economy), but the whole point of Fisher's compensated dollar plan is to prevent the working of Hume's price-specie flow mechanism by varying the exchange rate rather than domestic price levels.

### **The Quantity Theory: Long-Run Neutrality, Short-Run Non-Neutrality**

Hume ("Of Money," 1752a, p. 33) emphasized that "If we consider any one kingdom by itself, it is evident, that the greater or less plenty of money is of no consequence; since the prices of commodities are always proportioned to the plenty of money." The only lasting effect of an increase or decrease of the quantity of money in a closed economy would be a change in prices in the same proportion as the change in the money supply. Any effects on real economic activity would be only temporary. Once international trade was considered, it would matter whether one country's prices were the same as those of its trading partners, but flows of gold and silver between countries would equilibrate the price levels by distributing money between countries in proportion of each country's demand for real money balances. The mercantilist obsession with increasing a country's stock of money by using import restrictions and tariffs to achieve a trade surplus was futile: unless there was a demand to hold the money, the money would flow out of the country again. Similarly, Fisher (1896, 1911) argued, contrary to the populists and bimetallists associated with William Jennings Bryan's 1896 Presidential campaign,

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<sup>5</sup> Bishop Fleetwood's now-celebrated argument that the purchasing power of money had fallen over the previous two and a half centuries, changing the meaning of qualifications for certain college fellowships, was based on prices that had changed in roughly the same proportion (prices of corn, meat, drink, and cloth had all risen about six-fold in the preceding two hundred fifty years), so that he did not have to consider how to weight the prices in an index (see Humphrey 1986, pp. 265-66).

that an increase in the quantity of money and the price level would have no lasting real benefits. Hume (1955, p. 39 note 1) attributed the temporary stimulus given to real economic activity by a debasement of the currency, and the delay in the full adjustment of prices, to “illusion”: “In executing such a project, it would be better to make the new shilling pass for 24 halfpence, in order to preserve the illusion.” Apparently without knowing of Hume’s use of the term “illusion,” Fisher devoted a book, *The Money Illusion* (1928), to arguing that the temporary real effects of monetary shocks, positive or negative, resulted from misperceptions and slowly adjusting expectations. Because Hume and Fisher saw the short-run real stimulus from debasement of the coinage or other monetary expansion as illusory, the result of economic agents mistaking the actual situation and consequently basing decisions on misperceptions, neither looked favorably on inflation (see Wennerlind 2005 on whether Hume was an inflationist), even though in the early 1930s Fisher urged the reflation of the price level to its pre-crisis level.

Hume (“Of Interest,” 1752b) made the case that an increase in the quantity of money could not permanently lower the rate of interest, since the rise in prices would increase the demand for money in proportion to the increase in the supply of money. The mercantilist hope of a lasting reduction in interest rates due to a larger quantity of money was as futile as the goal of a lasting trade surplus or a permanent stimulus to real economic activity from a larger money supply. Similarly, but moving up one derivative, Fisher (1896) that appreciation of the purchasing power of money (a negative rate of inflation) would not cause any lasting increase in real interest, because the money rate of interest reflects expected inflation or deflation. More generally, Fisher expressed the uncovered interest arbitrage condition that the difference between interest rates in any two standards is equal to the expected rate of change of the exchange rate between the two standards (the covered interest arbitrage condition, that the nominal interest differential is equal to the difference between spot and forward exchange rates, is due to Keynes 1923 – then a young Marshallian quantity theorist). Fisher (1896) cited earlier recognitions of the relationship between real interest, nominal interest, and expected inflation (although he was the first to write the equation, or at least the first to publish it): a sentence in John Stuart Mill’s *Principles of Political Economy*, an expository note with a numerical example (with a cross-product term and with use of the terms real and nominal) in Alfred Marshall’s *Principles of Economics* and remarks in Marshall’s evidence to official inquiries, journal articles with numerical examples by Jacob de Haas and John Bates Clark (omitting the cross-product term). He also cited Thomas Tooke, W. Stanley Jevons, and Bonamy Price as examples of a larger number of economists who had not grasped the relationship. Fisher (1896) also cited one instance of recognition by a contemporary of Hume of the effect of monetary expansion and price inflation on nominal interest, an anonymous 1740 pamphlet on issues of paper currency by the British colonies in North America. Charles Bullock identified the author as William Douglass, a Scottish-born physician who moved to New England in the 1720s, and the American Economic Association reprinted the pamphlet in 1897 (Douglass 1740, Bumstead 1964). So it would not quite have been impossible for Hume to read the idea behind the

subsequent Fisher equation in an obscure pamphlet from Boston, although there is no evidence that he did<sup>6</sup>.

A striking parallel between Hume and Fisher is their stress on the short-run non-neutrality of monetary changes. In “Of Money,” Hume (1752a, p. 38) wrote, “At first, no alteration is perceived; by degrees, the price rises, first of one commodity, then of another; till the whole at last reaches a just proportion with the new quantity of specie which is in the kingdom. In my opinion, it is only in this interval or intermediate situation, between the acquisition of money and the rise of prices, that the increasing quantity of gold and silver is favourable to industry.” But, as Humphrey (1982) observed, Hume was there discussing a change in the quantity of money, not a continuing rate of change, and Hume then proceeded to state, “the good policy of the magistrate consists only in keeping it [the quantity of money], if possible, still increasing; because by that means, he keeps alive a spirit of industry in the nation, and increases the stock of labour, in which consists all real power and riches” (1752a, p. 40). Repeated increases in the quantity of money could keep the economy in the intermediate situation in which economic activity is stimulated by the lag of prices and wages behind the increase in money. Hence Adam Smith’s mildly censorious remark in his lectures that “Mr. Hume’s reasoning in exceedingly ingenious. He seems, however, to have gone a little into the notion that public opulence consists in money” (quoted by Humphrey 1982, p. 130). Hume’s “Of Interest” (1752b) also allowed for an increase in the quantity of money to temporarily reduce the rate of interest.

Fisher would not of course accept that repeated increases in the quantity of money could keep an economy permanently in that intermediate situation, because inflation expectations would adjust. But from 1896 onwards, he held that expectations adjusted with a lag, and argued (1911, Chapter IV) that economic fluctuations in “transition periods” of ten years or so were driven by the lag of nominal interest rates behind monetary shocks, rather than by any truly periodic cycle. To try to demonstrate the crucial role of gradual adjustment of inflationary expectations, Fisher published a series of articles correlating interest rates, indexes of economic activity, and the unemployment rate with distributed lags of past price-level changes, including a 1926 article that was reprinted in the *Journal of Political Economy* in 1973 as “Lost and Found: I Discovered the Phillips Curve – Irving Fisher.” On the short-run neutrality of money, Fisher’s analysis was Hume’s, raised to the next derivative. Hume stressed the gradual adjustment of prices and wages to a change in the quantity of money, Fisher the gradual adjustment of inflation expectations and nominal interest to a change in the rate of change of the money supply.

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<sup>6</sup> Hume did take some interest in the issue of paper currency in American colonies long before his involvement, as British chargé d’affaires in Paris in 1765 and as undersecretary of state in 1766, in the settlement of the paper currency of New France in circulation at the British conquest of Canada (Dimand 2005). Hume’s letter to Montesquieu on 10 April 1749 mentions a project for the issue of paper money “in your colony of Canada, but it was wisely given up in the very beginning” (as translated in Hume 1955, p. 188).

## The Gold Standard: Automatic Adjustment with Fixed Exchange Rates

Hume's first surviving statement of the price-specie flow mechanism was in a letter to Montesquieu on 10 April 1749, commenting on Montesquieu's *De l'esprit des lois* (Hume 1955, pp. 188-89): "It appears that we are, in England, too much concerned about the balance of trade ... If half the money in England were suddenly destroyed, labour and goods would suddenly become so cheap that there would suddenly follow a great quantity of exports which would attract to us the money of all our neighbours. If half the money which is in England were suddenly doubled, goods would suddenly become more expensive, imports would rise to the disadvantage of exports and our money would be spread among all our neighbours. It does not seem that money, any more than water, can be raised or lowered much beyond the level it has in places where communication is open, but that it must rise and fall in proportion to the goods and labour contained in each state." The price level changes in response to the quantity of money in a country, altering the balance of trade and inducing international flows of gold and silver until equilibrium is restored and the world's stock of gold and silver is distributed across nations in proportion to their demand for real money balances. An editorial note by Eugene Rotwein (Hume 1955, p. 188 note 2) identifies Hume's paragraph as a comment on Montesquieu (1748, Book XX, Chapter 11, a single-paragraph chapter on how the loss of taxes from establishing a free port is more than offset by the gain in industriousness) but it seems more apt as a rebuttal of Montesquieu (1748, Book XX, Chapter 23 "Those nations for whom it is disadvantageous to engage in commerce," p. 352), where Montesquieu states, "A country which always sends out fewer commodities or produce than it receives puts itself in equilibrium by impoverishing itself; it will receive ever less, until, in extreme poverty, it receives nothing ... in the states of which we speak, silver never comes back because those who have taken it owe nothing."<sup>7</sup> On the contrary, Hume argues that the trade balance is equilibrated by price changes, and silver flows to where it is demanded. As Maria Pia Paganelli (2006) points out, Hume did not view the equilibrium trade balance as necessarily zero, since he accepted the need for governments to accumulate gold and silver as a reserve in case of war (just as Adam Smith accepted the

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<sup>7</sup> Perhaps here is an explanation why the great philosopher Hume turned his attention to refuting mercantilist fallacies about money and trade. The typical mercantilist pamphleteer might not attract Hume's notice, but Montesquieu was a worthy opponent. The references to Montesquieu's economic theories in Wennerlind and Schabas, eds., *David Hume's Political Economy* (2008, pp. 5, 65, 117, 167, 224, 242) emphasize the *doux commerce* thesis after the civilizing role of trade. Even Carl Wennerlind (in Wennerlind and Schabas 2008, p. 110), who quotes Hume's letter to Montesquieu, does not indicate that Hume was expressing disagreement with Montesquieu on money and trade. Murphy (2009, p. 110) sees a resemblance between the ideas of Hume's "Of Public Credit" and those of Book XXII, Chapter 17, of *L'esprit des lois*, but does not mention Book XX, Chapter 23. Rotwein's mis-identification of the relevant chapter of Montesquieu (possibly just a typographical error in the chapter number) obscured Hume's disagreement with Montesquieu. *Argent*, translated as "silver" by Cohler, Miller, and Stone in the passage quoted from their translation of *L'esprit des lois*, should be taken as "money" in general.

higher transportation costs resulting from the Navigation Acts because of the need for a reserve of ships and sailors in case of war), but such an inflow of gold and silver would not require any mercantilist meddling with the free flow of trade. The very act of hoarding of gold and silver by a government spending less than its revenue would automatically produce the requisite inflow of gold and silver by increasing the country's demand for those precious metals.

In a long letter to Hume on 10 October 1750 (excerpted in Hume 1955, pp. 190-96, mis-dated 1749 by Rotwein – see Greig 1932, p. 132), commenting on drafts of several of Hume's economic essays, James Oswald of Dunnikier (Member of Parliament for Fife, at other times Scottish Commissioner of the Navy, a Commissioner of Trade, and a junior Lord of the Treasury) objected to Hume's assumption that the prices of internationally-traded goods could differ between countries in the course of the adjustment process (pp. 191-92): "a miraculous augmentation of the quantity of money in any countrey [*sic*] ... would not necessarily increase the price of all labour and commoditys [*sic*]; because the increased quantity, not being confined to the home labour and commoditys, might, and certainly would, be sent to purchase both from foreign countreys, which importation, unless obstructed by arbitrary laws, would keep down the price of commoditys to the level of foreign countreys; and if the price of labour still continued for a short time at a higher rate than that level, it would only serve, by attracting foreigners, to increase the number of useful inhabitants in proportion to the increased quantity of money." Instead of domestic prices rising relative to foreign prices, prices would remain as set in world markets, and the increased supply of money would result in an excess supply of money in the home country, causing increasing spending of money on goods, including foreign goods. Hume's reply to Oswald on 1 November 1750 (Hume 1955, pp. 197-199) clarified that he meant that money would be distributed among countries in proportion to their demand for real money balances: "I never meant to say that money, in all countries which communicate, must necessarily be on a level, but only on a level proportioned to their people, industry, and commodities." According to Charles Staley (1976, p. 254), "Hume replied that he agreed with Oswald." But, as Antoin Murphy (2009, p. 107) remarks, Hume's "reply avoided the main issue that Oswald had raised." In restating Oswald's analysis and declaring his agreement with it, Hume did not accept that using the additional money to buy foreign commodities would hold down prices for long: "I grant it would for one year, till the imported commodities be consumed. But must not the same thing be renewed next year?" Hume seized on Oswald's suggestion that high wages might attract immigration to concede that a nation might retain a gradual increase in money if that gradual increase in money stimulated a proportional increase in people and industry, "but if it do not produce such an increase, nothing will retain it except hoarding." Hume treated Oswald's mention of a possible induced increase in immigration (increasing demand for real money balances) as negating Oswald's main point that importation of foreign commodities could produce the equilibrating outflow of money while keeping domestic prices from rising.

In the published version of "Of the Balance of Trade," as in the draft seen by Oswald, the domestic price level changes relative to the foreign price level in response to a change in the domestic quantity

theory of money. The question is whether the gold price of a commodity remains the same in all markets throughout Hume's adjustment process, with the only relative price change being between the price of export goods and the price of import goods. Viner (1937) and Cesarano (1998) argue that Hume made this assumption, Samuelson (1971, 1980) that Hume did not do so but that, in the context of the two-commodity, two-factor, two-country, instantaneous arbitrage model of modern trade theorists, he should have. Most commentators conclude that Hume meant what he said in his repeated and emphatic statements about changes in the prices of "all labour and commodities" so that prices would be equalized between countries in equilibrium rather than at each moment, and that Hume did in fact propound the price-specie flow mechanism (cf. Staley 1976, Berdell 1995). Thus Staley (1976, pp. 255-56) interprets Hume's "condition of a uniform sales price within transport cost limits ... as a static equilibrium condition prevailing upon completion of the equilibrating gold flow process rather than as a condition which typically holds during the period of disequilibrium trading." This reading has the great advantage of taking Hume at his word.

In his lectures, Adam Smith credited Hume's essays of 1752 with opening his eyes to the fallacy of the mercantile system's futile obsession with import restriction to increase the balance of trade and thus the quantity of money. Yet, as Viner (1937, p. 87) and others noted, neither Hume's price-specie flow mechanism nor the quantity theory of money appear in *The Wealth of Nations* (Smith 1776), at least not in the chapter on money in Book I (there is disagreement whether traces may be discerned in the chapters of Book IV denouncing the mercantile of political economy). David Laidler (1980) and Thomas Humphrey (1981) have shown that Smith treated 18th century Scotland as a small open economy that was price-taking in world markets, with the quantity theory of money holding for the world as a closed economy, so that the gold price of commodities was determined by the world money supply and world demand for real money balances. Gold flows between countries would reflect the excess supply of or demand for money in a country at world prices, rather than the relative price of foreign and domestic goods. The money supply of each country is an endogenous variable, while the quantity theory with an exogenous quantity of gold and endogenous price level holds for the closed world economy as a whole. As Humphrey (1981) put it, Smith's analysis was closer to the later monetary approach to the balance of payments than was Hume's price-specie flow mechanism. Neither Laidler (1980) nor Humphrey (1981) mentioned James Oswald of Dunnikier, with whom Smith shared the view that the gold price of traded commodities was exogenous to a small open economy such as the Scotland of their day.

Irving Fisher, writing in the context of the United States (no longer a small economy by Fisher's time), saw the direction of causation running from changes in a country's quantity of money to changes in its price level, as in Hume's analysis rather than that of Smith. Because of slow and incomplete adjustments of expectations and money interest rates, such monetary shocks had real effects in "transition periods" that could last ten years. Accordingly, Fisher devoted the concluding chapter of *The Purchasing Power of Money* (Fisher with Brown 1911) to his compensated dollar plan to stabilize the domestic price level by varying the dollar price of gold to offset changes in the price index of a basket of commodities. Senator

Robert L. Owen, Fisher's political ally from their earlier campaign for a national Department of Health, attempted to insert such a mandate for price level stabilization into the Owen-Glass Bill that became the Federal Reserve Act, but was opposed by Representative Carter Glass (Owen, 1919, Fisher with Cohn 1934)<sup>8</sup>. Fisher attempted to disarm hard-money defenders of the gold standard, by disguising his policy rule as a form of the gold standard and omitting mention of the quantity of money. Instead of a floating exchange rate, the dollar would be convertible into gold at a fixed price of gold that would be changed at stated intervals – a scheme that would have been vulnerable to speculative attacks. Defenders of the gold standard were not deceived. Finally, Fisher (1935b) proposed stabilizing the price index by varying the quantity of money, with a floating exchange rate, but by then he no longer commanded the attention of the economics profession or the public.

Fisher (1935a) presented to the International Statistical Institute a twenty-nine country empirical study of the role of the gold standard's fixed exchange rates in spreading the Great Depression from country to country. Under fixed exchange rates, domestic money supplies had to adjust to bring prices in to line with the prices of each country's trading partners, with short-term effects on real economic activity, just as Hume had explained. Fisher argued that countries began to recover from the Depression once they left the gold standard and let their exchange rates float, permitting monetary expansion and reflation of the price level. Fisher's understanding of how the automatic international adjustment mechanism worked under the gold standard (or, without gold coins circulating, the gold exchange standard) was, allowing for the terminology of another century, Hume's understanding of how it worked, but Fisher endeavored to block the functioning of the mechanism. He wished each nation to be able to control its own money supply and price level, not of course for the mercantilist goal of increasing the quantity of money but in the interests of stable prices and thus stable real economic activity. Fisher's advocacy of an inconvertible paper currency (or convertible at a varying rate) contrasts with Hume's severe scepticism about even convertible paper currency, reflecting his sterling adverse view of John Law's monetary experiments. Hume qualified this scepticism somewhat after his involvement with settlement of Canada's paper money (see Dimand 2005 and in Wennerlind and Schabas 2008, and also Murphy 2009, pp. 109-110), omitting the word "darling" from the ironic phrase "our darling projects of paper credit" and adding two paragraphs about banks and paper credit, citing the use of overdrafts in Edinburgh as "one of the most ingenious ideas that has been executed in commerce" (Hume 1955, p. 70): "But whatever other advantages result from these innovations it must still be allowed that, besides

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<sup>8</sup> There is widespread agreement in the literature on the origins of the Federal Reserve System (e.g. Perry Mehrling, Allan Meltzer, Richard Timberlake) that because Fisher propounded his compensated dollar plan in *Stabilizing the Dollar* (1920), it was too late to be relevant to the debate over how to design the Federal Reserve. But he did not *first* propound it in 1920. Following the concluding chapter of *The Purchasing Power of Money*, Fisher had been writing journal articles and newspaper pieces advocating a monetary policy rule for price-level stabilization for nine years before his book on the subject. Senator Owen is also largely overlooked in discussions of the Owen-Glass Bill. See Dimand (2003).

giving too great facility to credit, which is dangerous, they banish our precious metals” (Hume 1955, pp. 71-72). Hume wanted the country to maintain a reserve of precious metals in case of war, although he rejected mercantilist interferences with free as unnecessary for this purpose, which would result simply from maintaining a demand to hold gold and silver (Paganelli 2006).

## Conclusion

David Hume and Irving Fisher were giants in the history of the quantity theory of money. Beyond the technical differences inevitable between works written in 1752 and in 1911, they shared a belief in the long-run neutrality and short-run non-neutrality of money. Hume combined his belief in the long-run neutrality of a change in the quantity of money with openness to the possibility that repeated changes in the quantity could keep the economy in the short-run, unlike Fisher, who held that expectations of inflation would adjust. They shared a similar view of the international adjustment mechanism, but Fisher hoped to short-circuit Hume’s price-specie flow mechanism by varying the dollar price of gold to keep the purchasing power of the dollar constant. Fisher’s *Purchasing Power of Money* was published in the bicentenary of Hume’s birth. A century later, it is fitting to remember them together as outstanding figures in a shared tradition of monetary theory.

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