

THE GREAT RE-COINAGE OF 1696
Developments in Monetary Theory

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Abstract:

The English Great Re-coinage of 1696 was one of the great monetary events in history. The English currency, a bimetallic standard based on the weight and fineness of the coinage, was debased in order to pay troops in the Netherlands during the Nine Years War. By 1695 almost 50% of the specie content was missing from coinage in circulation, causing a monetary crisis. The May 1695 actions of demonetisation of England's debased coinage and the issuing of new full-weight coin were instrumental in the creation of the British Gold Standard. This national monetary standard became the International Gold Standard during the nineteenth century. Charles Davenant, an author of economic tracts, politician and civil servant, was an important voice during the re-coinage policy formulation period. Davenant's theory of paper credit and his model of the circular flow of income provide a reasoned and critical analysis of the English monetary system in the 1690s and the potential impact of policy options being entertained by the Crown. This paper attempts to look beyond the traditionally studied debate between John Locke, Isaac Newton and William Lowndes; into the deeper theoretical and political concepts behind the final decision to re-coin the English currency. In this paper the impact of Davenant's monetary theory and his submission to Lord Godolphin on the action to re-coin will be investigated and placed within the wider context of the 1694-1695 Commission on the Coinage.

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§1. Introduction

The financial revolution is more than just the institutional developments that took place over the last part of the seventeenth century and the early part of the eighteenth century in England. The development of financial instruments fundamentally changed the way that commerce was viewed. The English monetary system was no longer just made up of the coins of the realm, but was now something much larger, incorporating fiat money, bills of exchange, and various financial instruments that underwrote merchants, generals and the state itself. This new financial world had developed gradually, beginning with the financial transactions that supported the Florentine woollen trade. This over time developed into the system of finance that drove Venice, Amsterdam and Antwerp. The key impetus for these innovations was to enable the state to financially sustain a protracted war.

The English, following the Dutch, began to develop a deep financial market and supported it by improving its taxation systems. The Bank of England was established for the purpose of providing capital for the state in 1694, but it was limited in its functions insofar as it lacked the capability to act as a lender of last resort and regulate the monetary sector of the economy. Though the Bank of England was the first central bank to be designed from the beginning as the financial arm of the state it was substantially different to its successors. The Banque de France, founded in 1800, was an example of a central bank founded for the purpose of regulation, with the Bank of England complying with this model from the mid-nineteenth century. This means that for the 1690s, response to a financial crisis in fact took place at the level of temporary commissions established by the state since the regulatory and lender of last resort powers of the Bank of England prevented it from playing an interventionist role in the market. The crisis of the specie currency was the creation of the market. As financial instruments and the institutions to support them developed, the market continued to operate off the basic maxim of profit maximisation. Since specie was still seen as money by many policymakers (a phenomenon which could in extreme cases be described as

bullionism¹) and by the state it was natural that the difficulties facing the silver coin of England would be considered from a purely functional point of view. This was no longer possible due to the developments in financial instruments since the 1660s. In this paper I look at the development of monetary theory and policy as it attempts to catch up with market and institutional developments.

In 1696, England, facing monetary difficulties, made the fateful decision to recoin all its silver currency. This decision was to be the economic policy that created the famed British Gold Standard and subsequently the International Gold Standard. Yet, the story behind the recoinage has been told in what can be considered a rather limited way. J.R. McCulloch (1856), the first to truly describe the importance of this period, framed the question of recoinage as a debate between John Locke, Lord Somers, acting on behalf of the king, William Lowndes of the Treasury, and Isaac Newton, Master of the Mint. Despite the prominence of these persons in the debate the members of the Commission on the Coinage all presented Lord Godolphin with options for improving the monetary situation of England. The Commission included: "Mr. Locke, Mr. D'Avenant, Sir Christopher Wren, Dr. Wallis, Dr. Newton, Mr. Heathcote, Sir Josiah Child, and Mr. Asgill, a lawyer." (Hardy, 1908: 71) This paper will focus primarily on the input of one of these members - Charles Davenant. Charles Davenant was a political arithmetician and economic policymaker from 1686 to 1714. His work on the recoinage informs the debate and provides an important glimpse into the economic world of 1690s as it moves from a specie monetary base² driven view of policy to one founded on financial instruments. He proposed an alternative to the recoinage, and in so doing described the functioning of the English credit system at the cusp of the Financial Revolution.

In this paper I investigate the importance of Davenant's contribution to the debate that eventually resulted in the Great Recoinage. First, I will discuss the monetary system as it existed in 1690s England. Second, I will discuss the traditional Locke, Lowndes and Newton debate. Third, I will assess Davenant's influence in this debate and his importance to the development of monetary thought. Finally, I will explain

¹ Bullionism is the confusion of specie money (i.e. gold and silver) with the wealth of the nation. The so-called "mercantilist" authors are commonly associated with confusing bullion with the national wealth. The wealth of a nation comes from its output and in modern terms is described in Keynesian national income terms: Gross Domestic Product/National Income (Y) = Consumption (C) + Investment (I) + Government Expenditure (G) + the Trade Balance (Exports (X) – Imports (M)).

² The monetary base is considered that part of the money supply that consists solely of notes and coin in circulation. It is sometimes termed high-powered money.

some of the effects of the recoinage. I will now explain the functioning of the monetary system of England in the 1690s.

§2. The Institutional Context – Money and the Economy in 1690s England

Today monetary policy is a function of the Central Bank. The policies of the European Central Bank are quite clear, the predominant model of the Taylor Rule explains many changes in monetary policy. Despite the many financial instruments that make up the money supply, the monetary base or high-powered money is relatively simple to explain, understand and account for in the market. In the early-modern period the monetary base was specie: gold and silver. The bimetallic specie standard proved very difficult to maintain.

Monetary systems that are based on specie are much different from systems of fiat money, the US dollar or the euro being the primary examples. The essential component of a specie standard is that the market price of precious metals is kept at a parity level (or so close that transactions costs eliminate profits) vis-à-vis mint price of the coin.³ The majority of the coinage in the 1690s was produced by hand, which meant that no two coins were precisely alike. (Sargent and Velde, 2002) The methods of coin production were still largely manual, with coins punched and stamped by hand or animal powered machines. The public acceptance of coins required that they be fairly consistent, and despite fabrication limitations the coinage was largely adequate. This was not the case in the 1690s. The effects of clipping the coinage had resulted in the specie system being strained as the face value of the coinage did not correspond with the metal content. These complications resulted in the eroding of confidence in the coin and the rising of transactions costs.

³ An example of this would be a silver coin. The coin would be defined to have a certain precious metal content (measured in carets, like the metal content modern jewellery, 24 carets indicating purity) and that metal would be mixed with a baser metal such as copper, nickel or tin. The stamp on the coin would ensure that the coin would not have to be assayed upon receipt, since the Mint, by the sovereign stamp has ensured the fineness of the precious metal in the coin. The process of clipping the coin undermines the stamp of the state, since there is obviously less precious metal content in the coin. Even the less sinister process of wear and tear will result in the coins' value coming into question.

Figure 1: Charles I Schilling.



Figure 2. Hammered Silver Charles II ½ Crown, 1661-1



In Figures 1 and 2, the two heavily clipped and worn coins, it becomes apparent some the problems facing the specie standard in the 1690s.⁴ As the coinage deteriorated the ability to judge coins as full weight, genuine or false became more difficult. The first assessment would be to find the coins to be rude forgeries but they are true coins, clipped and worn. The questioning of the validity of the coinage resulted in higher transactions costs. Simultaneously it lowered government revenues as coins of low weight were returned to the Treasury for tax purposes. William Lowndes writes in his

⁴ These coins today represent some of the finer examples of English coin in the seventeenth century, as they are sold in the numismatics markets for over 300USD.

A Report Containing an Essay for the Amendment of the Silver Coins (1695a) how the revenues of the Crown have been significantly reduced by lack of bullion, as seen in Table 1.

Table 1.

A Computation of the Common Weight of a Hundred Pounds by Tale, in Ordinary Silver Money at this Day, taken from a Medium of the Bags, Weighed at the Receipt of Exchequer, in May, June and July last. (Lowndes, 1856 [1695a]: 90)												
The Weight of One Hundred Pounds by Tale in Silver Moneys, according to the Standard of the Mint, ought to be Thrity two Pounds Three Ounces, One Peny Weight and Twenty two Grains Troy.												
No.Bags	What they ought to Weigh			Weight at the Exchequer			Deficiency					
	oz.	dw.	gr.	oz.	dw.	gr.	oz.	dw.	gr.			
40		15483	16	16		8095	5	0		7388	11	16
74		28645	1	20		14373	5	0		7388	11	2
133		51483	14	22		27318	0	0		24165	14	2
120		46451	10	0		23496	15	0		22954	15	0
105		40645	1	6		20899	15	0		19745	6	6
100		38709	11	16		19588	5	0		19121	6	16
572		221418	16	8		113771	5	0		107647	11	8
							oz.	dw.	gr.			
The Medium of the Weight of each Hundred Pounds							<i>ferē.</i>			198	18	0.333
The Medium of Deficiency										188	3	21.677
										387	1	22

Source: Lowndes, 1856 [1695a]: 90

The English economy, like almost all economies of the late seventeenth century, was intimately linked to its bullion-based currencies. A corruption of the coinage was not only potentially inflationary, but also destructive to the very fabric of the economy and political establishment at large. Even good coins had problems as seen with this James II twopence piece, which was off-struck:

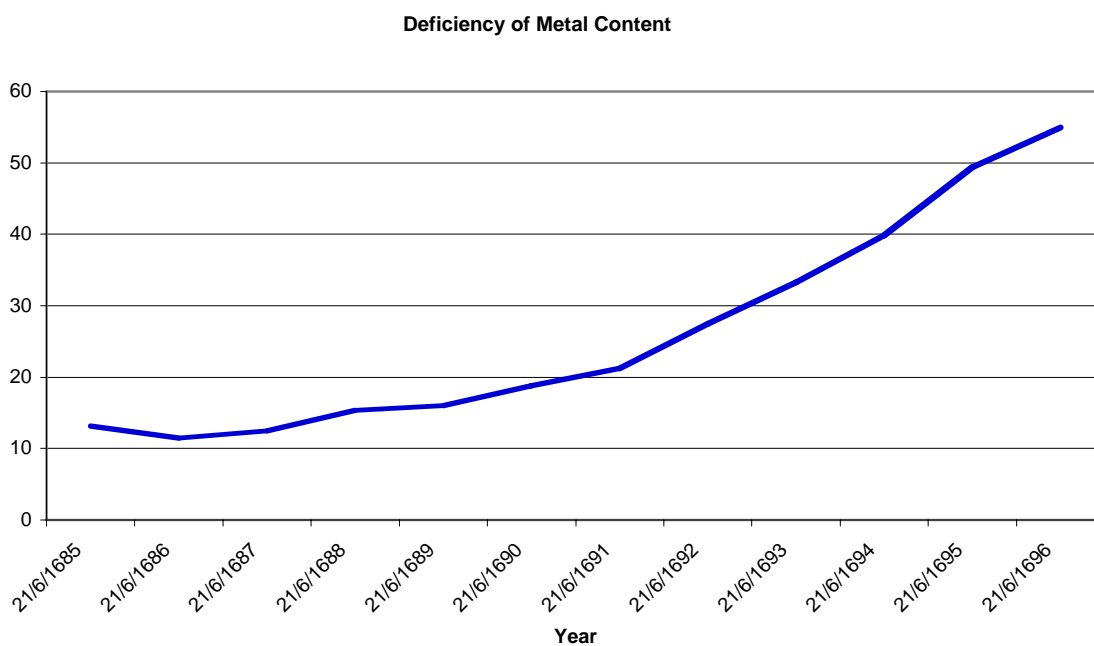
Figure 3: James II Twopence, Off-Strike



Source: <http://www.bottles.freeserve.co.uk/>

The coinage problem had its origins in the coin being the monetary base of a specie system. Given that precious metals had a market price, coins could be clipped or shaved and the silver or gold gained could be melted into bullion and sold. The coin, since, it would not have been perfectly round or stamped from the beginning could still circulate. This was the problem of the 1690s, as the bullion market price of silver rose, there were profits to be made from clipping the coinage. Despite the invention of milling at the edges, the handicraft methods of making coins resulted in the milling being of little use. The example in Figure 3 illustrates a high quality coin that was off-struck. The milling was placed on the coin to prevent clipping but with coins produced with Mint errors as above in constant circulation it became difficult to discern clipped coins from coins that were carelessly produced. This enabled the coins to be clipped with little ability to stop the process. As more and more coins were clipped, the face value of the existing body of coins came into question, raising transactions costs. By 1696 over 50% of the precious metal content of the coinage was removed. (Jones, 1988)

Figure 3: Deficiency of Metal Content



Source: Jones, 1988.

This problem becomes even more difficult to solve when there are two precious metals that are being used for money. While England used both gold and silver in the 1690s it was the silver coin that was being clipped. This was due to the ratio of gold to silver being upset by the high mint price of gold and the high bullion price of silver. Though this is a simple problem to visualize theoretically, it again is difficult to comprehend and solve in practice. This was the complex problem that faced the Commission.

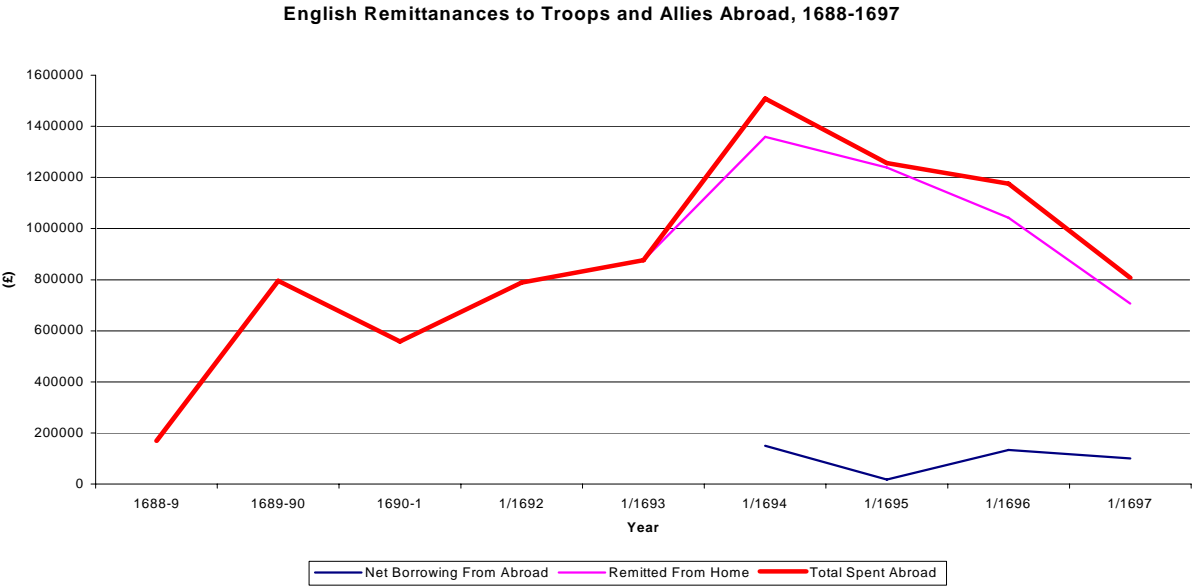
In 1696 England was at war with France. This war was largely fought on the Continent and King William III and his armies required a constant flow of remittances from London. This created arbitrage opportunities.⁵ The bimetallic specie standard requires that the mint price of specie and the bullion market price of specie of both kinds should be equal or sufficiently close so that transactions and transport costs eliminate all arbitrage profits. If this delicate balance was disturbed between the market to mint price and the price ratio of silver to gold, it could result in the coined currency being altered for profit making purposes (i.e. if gold's mint price rises and silver's bullion price rises, this would result in gold flowing into the mint and being coined and silver coinage leaving circulation to be sold on the bullion markets).⁶ This would typically involve the clipping of the coin (or in extreme cases actually fully melting a coin down), debasing the monetary standard and that would have debilitating results for the economy resulting from the rising transactions costs and reduced liquidity as the face value of the coin came into question and more specie left the monetary base. (Redish, 2000)⁷

⁵ As the specie prices rose and fell on the international bullion markets persons could melt down clippings and sell them abroad for other money. An example in the 1690s would be to clip silver coin, melt it into bullion and sell it on the Continent for gold coin where silver fetched a higher price than in England. This gold coin would then be shipped back to England where the Royal Mint was paying a higher price for gold than other countries. This gold would be sold to the Mint for silver money and the arbitrageur would make a profit. The result would be a drain of silver and an oversupply of gold.

⁶ See the diagram in Appendix I visual explanation.

⁷ For further information on this monetary system see Redish (2000).

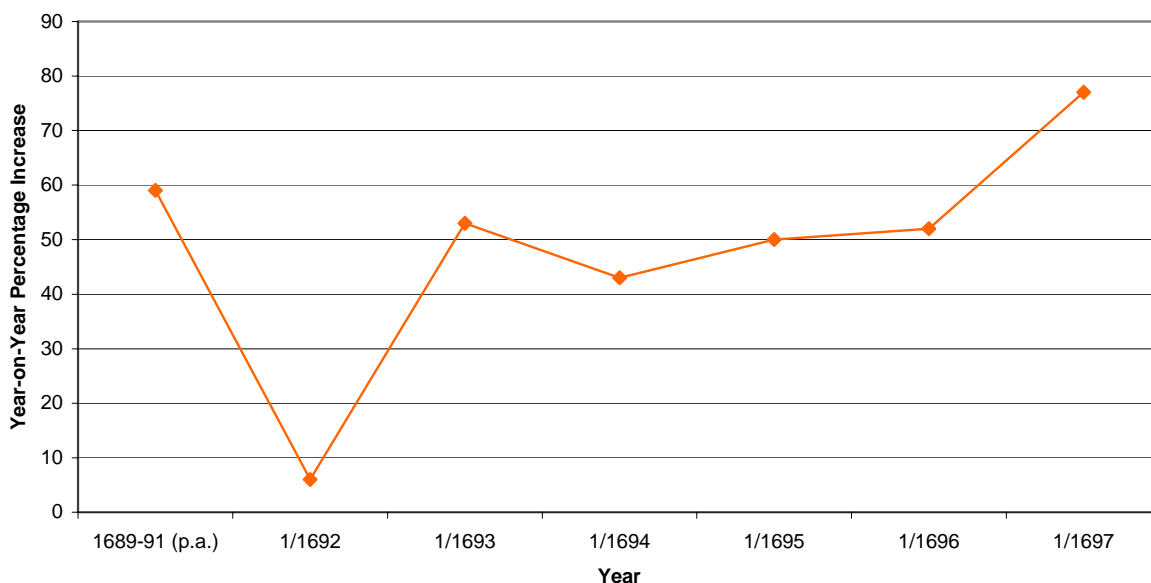
Figure 4.



Source: Jones, 1988.

Figure 5.

Borrowings



Source: Jones, 1988.

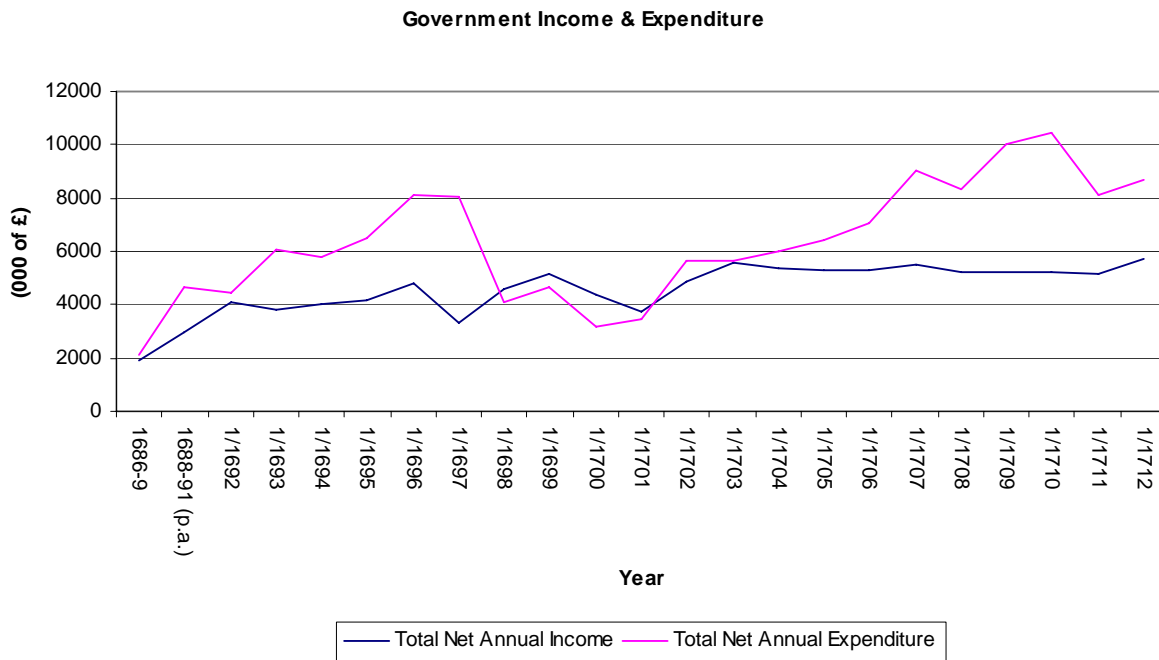
The coinage problems in 1696 were an example of this type of imbalance. Dutch silver had a higher bullion price than the English Royal Mint's mint price for silver. This caused silver to flow out of England into Holland to gain the arbitrage profit. England, on the other hand, had a very high mint price for gold. Continental gold bullion (paid to the English sellers for their silver bullion) was imported into England and sold to the Royal Mint. The result of this was that silver coinage became scarce and gold coinage became plentiful.⁸

There was the added incentive to clip the silver coin and export the bullion abroad. Clipping the coin resulted in a problem for the economy at large as it undermined the face value of the coin, increasing transactions costs of doing business. Second, it was debilitating to the collection of taxes to fund the war, as remittances required full-weight coin (unclipped coinage). William Lowndes in his submission to Parliament on the state of the coin in England found that the weight of the coin entering into the Treasury from tax collection was almost half the weight that it should have been. As seen in Figures 4, 5, and 6, the fiscal situation was quite poor. As England

⁸ Note that this was not the only time that England faced monetary difficulties. At close of Elizabeth's reign there were coinage problems. There were also difficulties during the Interregnum. (See: Supple, 1959.)

exported more specie to pay remittances and incurred more foreign denominated debt the economy came under greater and greater stress.

Figure 6.



Source: Jones, 1988

The corruption of the coinage made remittances extremely difficult. (Lowndes, 1856 [1695]: 90) The problem of the coin rapidly become not just an economic problem but one of military logistics, as funds to supply William's army were being slowed by monetary problems in England. The war with Louis XIV was at a stalemate: any weakness, financial or otherwise, could result in the Anglo-Dutch alliance being defeated. William could not afford this and the Commission's brief was to find a rapid solution to this problem.

Clipped coinage and silver outflows together created a liquidity problem for the economy. As Sargent and Velde (2002) and Redish (2000) found, until the advent of the steam press and low cost methods of coin and paper money production, small change was a scarce commodity. The silver outflow only made this problem worse in England. Silver was of lesser value than gold with one golden guinea representing around 26s. to 30s. Between 1694 and 1696, silver's bullion price was higher, resulting in silver coins being clipped and the clippings melted and sold on the bullion market. As this process of clipping expanded, the quantity of small denomination coins was reduced (both in the sense that they were lighter post clipping, and because more and more of them were being melted outright into bullion) and a liquidity problem emerged. As Sargent and Velde

(2002) state, this liquidity problem at the small denomination end of the market increased transactions costs and made transactions between individuals more difficult.

The question of the Recoinage was framed within this economic background. The Commission existed to find a solution to a problem that was obviously becoming an economic, political and military liability. Money to most persons (and Locke states this explicitly in *Some Considerations* (1696) [see quotation below]) was silver coin. Gold existed but as a high denomination coin (30s in mid-1695) used by few individuals, similar to a €500 note today. (See Sargent and Velde (2002) for more on this topic.) In order to find a solution to the looming remittance problem and the liquidity problems facing the economy, Lowndes, Locke, Newton, Davenant and others were requested to find a quick method of correction.

The proposals varied greatly. Within the structure of a specie standard one possibility was to change the weight of the coin by increasing or decreasing metal content, a second was to change to face value of the coin and maintain the present metal content. Locke desired to bring the coinage back to its original face value metal content. This was consistent with his social contract philosophy - the State had an obligation to maintain its property, this included coinage. Lowndes proposed a considerable devaluation as a method of finding a rapid solution. Newton, as Master of the Mint, was to make the alterations to the bimetallic ratio required by Locke's proposal. Davenant, drawing on his experience as an economic policymaker in the Commissioners for Excise and his expertise in political arithmetic, was behind the idea of maintaining the *status quo* and supporting the expansion of England's credit system. In his two manuscripts, *A Memorial Concerning the Coyne of England* (1695) and *A Memoriall Concerning Credit* (1696), which were edited and rediscovered by Usher in 1942, Davenant outlines the idea of an economy that does not require a perfectly functioning specie system to survive. Davenant describes the beginnings of the Financial Revolution in late seventeenth-century England, and in this description he outlines the importance of credit in the monetary system. His input into the debate on Recoinage was not accepted, but it enriched the debate and illustrated his position as an important contributor to the origins of the Classical School of Economics.⁹

⁹ To quote Keynes: "The classical Economists' was a name invented by Marx to cover Ricardo and James Mill and their *predecessors*, that is to say for the founders of the theory which culminated in the Ricardian economics. I have become accustomed, perhaps perpetrating a solecism, to include in "the classical

§3. The Specie Focused Policy – The Debate Between Locke & Lowndes

§3.1. Lowndes

The position put forth by Lowndes speaking on the behalf of Treasury was that devaluation of the coin was by far the best course of action for the Crown, maintaining the face value of the coin but establishing a much lower precious metal content. This linkage between the intrinsic and extrinsic values of the coin and the breakdown of that linkage is at the heart of the problems facing England's money in the 1690s. The proposal by Lowndes did attempt to correct this problem and by bringing the face value into line with the metal content by law he expected the problem of the silver outflows and the gold inflows to stop.

William Lowndes sets out his ideas and those of the Treasury in his *A Report Containing an Essay for the Amendment of the Silver Coins* (12 September 1695).¹⁰ The *Report* was largely a history of the English currency since the time of William the Conqueror. The single most important idea stated in this work was that the English silver coinage should be devalued by twenty-five percent. The nominal value (i.e. extrinsic value) of the Crown piece would be raised from 5s. to 6s. 3d. and all other silver coinage in proportion. The specie standard would then respond to this change. As silver coins had a higher face value, or Mint price, the incentive to sell silver bullion would be eliminated. This was a course of action that would solve some of the immediate problems facing the Crown, but not the long-term questions, such as the bimetallic ratio. Lowndes began his discussion by stating that the standard fineness of the coin should be maintained:

That the present Standard of Fineness or Purity ought to be continued, namely, of Twenty two Carats Fine, and Two Carats Allay for the Gold; and Eleven Ounces Two Penny Weight Fine, and .Eighteen Penny Weight Allay for the

school? the *followers* of Ricardo, those, that is to say, who adopted and perfected the theory of the Ricardian economics, including (for example) J.S. Mill, Edgeworth and Prof. Pigou.” (Keynes, 1936: 3) [Original Emphasis]

¹⁰ It is important to note that research by Kelly (1991) illustrates the Chancellor of the Exchequer at the time, Charles Montague, was responsible for writing this work. Montague was Chancellor for the entire Recoinage and was the sponsor of the Recoinage Acts in Parliament. The basis for this assertion is the similarity of the Lowndes report with the Fourteen Resolutions of Scobell Committee. Montague was the moving spirit behind these points and was a fervent supporter of devaluation and attempted to press for a resolution of Parliament in spring 1695 with the support of Godolphin. The political machinations of the time, most especially the desire of the King to maintain the monetary standard and the price of reconciliation between the Montague and Wharton faction and the Shrewsbury and Somers faction following a leadership challenge meant that the devaluation proposal had to be abandoned. (Kelly, 1991)

Silver, in all the New Coins that shall be now directed. [Original Emphasis]
(Lowndes, 1856 [1695a]: 17)

This statement opens the ground for Lowndes to work towards his solution of devaluation. The devaluation would be considered sizeable by even modern standards. The rationale for this radical change in the money of England was that:

The Value of the Silver in the Coin ought to be Raised to the Foot to Six Shillings Three Pence in every Crown, because the Price of Standard Silver is Bullion is Risen (from divers necessary and unnecessary Causes, producing at length a great scarcity thereof in *England*) to Six Shillings Five Pence an Ounce: This Reason (which I humbly conceive will appear irrefragable) is grounded chiefly upon a Truth so Apparent, that it may well be compared to an Axiom even in Mathematical Reasoning, to wit, *That whensoever the Extrinsic Value of Silver in the Coin had been, or shall be less than the price of Silver in Bullion, the Coin hath been, and will be Melted down.*[Original Emphasis] (Lowndes, 1856 [1695a]: 38)

Despite the logical position that if the price of bullion is higher than the face value of the coin, bullion will be exported (be it in the form of clippings from coins or bars of silver) his devaluation was too radical for the Parliament to consider.¹¹ The problem was that Lowndes' plan would have resulted in the removal of silver from the monetary system, as there were no provisions in his plans to alter the gold to silver ratio or to reduce the fineness of the specie. Silver was considered to be the true currency of England, gold was secondary.

There were errors in Lowndes' analysis of the benefits of the devaluation of the silver currency. One of the most striking of these errors, and, interestingly, one that continues to this day, was that he viewed devaluation as panacea for international payments problems. Lowndes stated:

It is hoped that the Exchange to *Holland*, (which by the way had risen a little of late) may be the Success of some good Designs on Foot (though the War should continue) be kept at a stand, at least from falling much lower. In which Case I think the Arguments of these Gentlemen will have little or no Weight. (Lowndes, 1856 [1695a]: 208-9)

¹¹ The question of its reasonableness as a monetary policy must also be addressed. Lowndes proposal was effectively a devaluation of the currency. As modern economists are aware of, the policy of devaluation has long-run negative welfare effects, even if there are some positive effects to a temporary, artificial competitive advantage.

He further defended his position by stating that there was a distinct need for a reliable base of specie for the smooth running of the domestic economy.¹² The Lowndes proposal was radical, in the sense that a twenty-five percent devaluation was unprecedented, and insightful, in that it provided a corpus of monetary history of England to inform the debate. This proposal was rejected, however: his twenty-five percent devaluation was just too large for Parliament to be convinced. Locke worked diligently to discredit the proposal, and eventually won the day.

§3.2. Locke

Locke and Lowndes shared a common vision despite their different approaches to the recoinage; they both saw silver as the true money of England and gold as a distant second. They both believed that the monetary system needed to be grounded in specie.

Locke felt that since silver was paramount, it was the link between the intrinsic and extrinsic values of the coin that required the greatest defence. This reflects his understanding of the currency system both philosophically and empirically. Locke apparently had difficulty reconciling the Guinea situation to the contemporary problems of the *de facto* bimetallic currency. The *de jure* currency of England was silver. Locke approaches this problem from the point of view that *only* silver exists as legal tender. This complicates his analysis and causes him to reject the interplay between gold and silver in the international markets. (Kelly, 1991)

Arbitrage opportunities created by the war had allowed for a complex market to develop between silver, gold and bills of exchange. It was clear that silver was leaving the country at an alarming rate. The price-specie-flow mechanism¹³ is absent from his analysis of the situation that England's economy had found itself through the

¹² This was something that his contemporary Fleetwood (1695, 1707) touched upon as he wrote in support of Lowndes' position.

¹³ See Note 30 for a full explanation.

debasement of the coinage by silver export and clipping.¹⁴ Locke's economic epistemology also poses a potential pitfall in his analysis.

Locke expanded upon his position that the coin should be restored to its original state (read intrinsic value) at the expense of the public he made clear that silver was the true currency of England:

Money is the measure of Commerce, and of the rate of everything, and therefore ought to be kept (as all other measures) as steady and invariable as may be. But this cannot be, if your Money be made of two Metals, whose proportion, and consequently whose price, constantly varies in respect of one another. Silver, for many Reasons, is the fittest of all Metals to be this measure, and therefore generally made use of for Money. But then it is very unfit and inconvenient, that Gold, or any other metal, should be made current Legal Money, at a standing settle Rate. [Original Emphasis] (Locke, 1996 [1695]: 85)

Locke had decided that the best of course of action for the government was to maintain the original standard of money and restore the clipped and worn money to its original status. The reasoning behind this position was that money relied upon a certain level of confidence in the seal of value that was placed upon it: money was defined largely by its seal or stamp of value, which was a statement of its extrinsic value vis-à-vis the intrinsic metal content. It is the maintenance of the parity between the seal and the actual intrinsic content that was key to the running of a viable monetary system. As Locke emphasised in the statement:

Only this I will confidently affirm, That it is the Interest of every Country, that all current Money of it should be of one and the same Metal; That the several Species should be all the same Alloy, and none of a baser mixture: And that the Standard once this settled, should be Inviolably and Immutably kept to perpetuity. For whenever that is alter'd upon what pretence soever, the Publick will lose by it. [Original Emphasis] (Locke, 1996 [1695]: 87)

The focus on the Scholastic concept of intrinsic value was vitally important to Locke's understanding of money. Intrinsic value is a passive power; a quality which enables one object to affect another, whereas exchange value is a relative quality and can

¹⁴ Locke does have a concept of the quantity theory of money. It is not a dynamic model and is based on the linkages between the money supply and the price level. Keynes' link to Locke is that you only will have inflation in a full employment economy. Keynes goes further to state that Locke is the bridge between the Mercantilist and the Classical worlds of economics. This is apparent in Locke's still strongly Scholastic approach to money and Aristotelian economics. (Kelly, 1991)

only be considered secondary.¹⁵ Money exists through common consent. This is not a physical contract or in anyway explicit but a tacit agreement:

Consent, for Locke, is concurrence in a mutually beneficial course of action, arising as it were in the form of spontaneous intellectual assent once the advantages of an arrangement become apparent. In the *Second Treatise* men consent to the adoption of money, since by permitting the accumulation of the surplus product and facilitating the division of labour money makes possible a more advanced standard of living. (Kelly, 1991: 87-88)

Locke's understanding of money is only part of his approach to the Recoinage. While Lowndes presents the historically proven and traditionally taken policy option Locke abandons this pragmatic approach. Locke differs from Davenant in so far as he does not understand the importance of credit to the English monetary system and subsequently to the economy. In addition, Locke's methodology is fundamentally different. Economics exists as part of the field of *Praktikē*¹⁶ and not as part of a Baconian experimental science. Davenant's analysis is the product of Political Arithmetick, a fundamentally different epistemological method. This is not to deny the empiricist that is the cornerstone of Locke's thought, but his understanding of economic issues retains a more traditional mercantilist and scholastic character.

King William preferred the views of John Locke¹⁷, who was resolutely against the idea of devaluation and had powerful support from friends such as Somers and Trumbell. (Somers was one of the principal members of the Whig administration and an ardent opponent of the devaluation proposal put forward by Lowndes). It is important to understand that Locke was also driven by his ideas on property and social contract. To Locke, the State had a responsibility to its citizens to provide a sound currency. To debase the currency would effectively renege on the State's responsibility to ensure that its property (which was defined as money in this situation) be maintained to the

¹⁵ To look at it from the point of view of the pure Scholastic, though the *valor impositus* on silver comes from its function as the medium of exchange, the *valor intrinsecus* of money is the product of the common consent of all to universally acknowledge this medium of barter or exchange. Locke firmly plants himself in the category of a neo-scholastic Natural Law theorist by embracing this epistemological construct.

¹⁶ That is: "...The Skill of Right applying our own Powers and Actions, for the Attainment of Things good and useful. The most considerable under this Head is *Ethicks*, which is the seeking out those Rules, and Measures of humane Actions, which lead to Happiness, and the means to practise them. The end of this is not bare Speculation, and Knowledge of Truth; but Right and a Conduct suitable to it." (Locke, 1975: 720)

¹⁷ He personally supported maintaining the currency but later attempted to persuade Parliament to devalue as the Recoinage unfolded into unmitigated economic crisis. (Kelly, 1991)

standard that the citizenry had expected the State to maintain. The State, therefore, had a responsibility to maintain that the coin was true in weight and measure. The State's role in the production of money was to issue a stamp of value that doubled as a statement of responsibility that the extrinsic and intrinsic value of the coin was maintained as the Royal Mint had specified in production. The State ensured that the silver content of the coin was equal to its face value; Locke therefore felt that the debased coin must be returned to its original intrinsic value as that was the responsibility attached to the stamp of value.

Locke's proposal won, therefore maintaining the bimetallic system and bringing the coin back to full weight. The system remained bimetallic but with an unknown switch of preference from silver to gold, something that none of the participants expected and that was left to Newton to correct.¹⁸ This problem was created by Locke's resolute position that the linkages between what money passes for in the market and what the silver content of that money was would ensure the functioning of England's monetary system. His final thoughts related to the devaluation of Lowndes' proposal, where he predicted that following Lowndes' recommendation would result in the complete elimination of all the milled money of England as well as the already corrupted stamped money. Lowndes made one last attempt to convince the Commons that the devaluation of the coin was the expedient method of dealing with this problem. In this debate a final voice was heard, that of Sir Isaac Newton, who was in competition with Locke for the position of Master of the Mint.

¹⁸ This was because Newton was the only member of the advisory body to maintain a position where he could significantly alter monetary affairs. As Master of the Mint he changed the price of the guinea many times over his tenure to stop the outflow of silver coin.

§3.3. The Decision Made by the Crown & Sir Isaac Newton's Response

A swift solution to the problem of recoinage was extremely important to William, as political and military considerations were pressing. The decision was made that Locke's recoinage proposal would be followed. The advice of the Lords close to the King was that recoinage should not be undertaken as a royal decree but under the auspices of Parliament. In the King's speech on 23 November 1695, he mentioned the ill state of the coin and the need to expedite a solution to this problem, though he gave no allusions to the solution. (Horowitz, 1977) The Commons began to formulate a general position on recoinage during the month of December. By the 10th of December a resolution was proposed that followed the spirit of Locke's thinking.

In January 1696, Godolphin took over the Commons' proposal and the Earl of Rochester¹⁹ essentially created a new bill. (Rose, 1999) The first coinage bill was passed on 13 January 1696: The "Act for Remedying the Ill State of the Coin of the Kingdom" took effect on 17 January 1696. (Li, 1963). It was decided that by the 4th of May, clipped coins were to cease to be considered legal tender, and by the 24th of June they would no longer be acceptable as a form of payment for taxes.

The proposals of both Locke and Lowndes had explicitly ignored the problem of gold and the bimetallic question. The action or rather inaction of the Parliament and the ensuing confusion over the gold situation made this issue even plainer. In a letter signed 22 September 1698, Locke wrote to the Lords justices as a Commissioner of Trade, imploring the Government to solve the continuing problem of guineas which he had accidentally created in his proposal on recoinage silver. The recommendation was to lower the guinea to 21s. 6d. from the current price of 22s. This action was not taken by the Lords justices until 1699, when the Bank of England refused guineas at 22s. It was Newton who enacted this policy.²⁰

¹⁹ Another powerful member of the Tories.

²⁰ Locke's errors and the confusion over the future value of guineas were problems to be solved by Newton. The outflow of silver coins continued after the recoinage was completed and gold inflows and the coining of gold increased. The guinea at 21 s. 6d. remained at 10d. premium. (McCulloch, 1856) The premium on bullion still drew silver out of the country and the ratio between silver and gold had not been modified sufficiently to ensure the retention of a bimetallic system. Newton, unlike Locke, felt that

Newton had come to the understanding, following this painful monetary contraction, that as long as the price of silver bullion was higher than that of the coinage there would be no natural inflow of silver into the Mint, because it would be more profitable to sell silver on the bullion market. The profit at the time was 2 to 3d. (4%) in an ounce. (Li, 1963) The further instructions left to the Commons by William and Somers were to consider the price of guineas, whose price fluctuations were already resulting in exchange rate difficulties and a scarcity of small denomination coinage. (Horowitz, 1977) At 30s. per guinea and the price rising rapidly there was an acute need for the overvaluation of gold to be resolved. "The Act for taking off the Obligation and Incouragement for Coining Guineas for a certain time therein mentioned" (5 March 1696) solved the problem slightly by immediately lowering the price of guineas from 28s. to 26s., subsequently to 25s. and finally to 22s.

the passing the clipped coin by weight was an impractical approach. His position fell between those of Locke and Lowndes: he proposed that the coin be brought back in stages.

Despite his pragmatic ideas on how to fund the recoinage, his recommendation that silver and gold be left alone so that silver will become scarce enough so as to naturally raise its price in the market, was misguided. By 1702 21s. 6d. was an over-valuation of 9d. and had resulted in a surplus of gold coinage over the last thirteen years. (Li, 1963) Newton, realised the mistakes of the past and in the need to rectify the situation he made a final decision on the future of Sterling- a Proclamation issued on the reduction of the value of the guinea from 21s. 6d. to 21s., and a final gold to silver ratio decided at 1:15.212 pounds gold to silver. Still Newton's final act to correct for the errors of 1696 was to be for nought. There was still an overvaluation of the guinea of 4d. or 1.58 percent. Sterling became *de facto* monometallic from 1717 to 1816, with the silver stock of coinage becoming entirely secondary coins, well worn and of little importance. (McCulloch, 1856) Earl Liverpool legalized this situation with the recoinage at the close of the eighteenth century.

§4. A Financial Instrument Based Point of View – Davenant

§4.1 Davenant: An Introduction

Davenant²¹, an advanced economic thinker and astute practitioner of the method of political arithmetic, had many ideas on recoinage and monetary theory that deserve exploring. Unlike Lowndes and Locke, he approached the questions of the Great Recoinage from the point of view of deductive science. Davenant first set out his theories on money and credit and then proceeded to provide an answer to the questions that were posed to him by Lord Godolphin. This section of the paper will address Davenant's background and will set out his monetary theories and their influence on his approach to the problem of recoinage.

Davenant, it is important to note, was at first against the idea of the recoinage and felt that devaluation would only result in the creation of inflation and a worsening of the exchange rate with Holland. Davenant, contrary to both Locke and Lowndes, was of the mind that the recoinage should be delayed as long as possible, at least until the completion of the War, and should under no circumstances be rectified by devaluation.²² His most pressing concern was that the war with France made England vulnerable, and to engage in such a risky action as a comprehensive recoinage would only result in disaster. He believed that as the problem had existed for so long, a delay until the end of the war would not significantly exacerbate the situation. The central precept to which Davenant continuously returned was the need for a base of money in which there was confidence, but that the draft horse of the monetary system of England was to be found in credit, not bullion. Credit was more flexible and able to absorb real and monetary sector shocks better than specie.

²¹ It is important to state that Davenant's reputation as a Tory author has tarnished many of his writings. Macaulay (1966) and Waddell (1959) both comment on Davenant's status as a Tory "pen for hire" and his extreme desire to regain the patronage and power he lost with the end of the Stuart monarchy. This has traditionally caused some concern about his integrity. Horsefield (1960) uses Davenant's data and through he comments on its validity with respect to John Pollexfen's data, the ongoing debate between the two in the 1690s illustrates a contemporary dispute over the statistics. Davenant's two statements to the Commission were not printed at the time and he maintains that the Recoinage was a detrimental decision in his works for many years after 1696. Though Davenant's logic is not always watertight, he is still able to demonstrate to the reader a clear conclusion and the method of analysis that helps to draw together those conclusions.

²²Cf. Davenant, 1942 [1695], pages 28-29 and 62-63.

§4.2. Davenant's Background²³

Charles Davenant was one of the bridging individuals in the history of economic thought. He was a student of the school of “Political Arithmetick”. This was a method of analysis that was to assist in the running of government and the creation of policy. Davenant subscribed to the philosophy of William Petty, who created the method of Political Arithmetic in 1690, only five years prior to Davenant's writing on the state of the coinage and money of England.²⁴

In his position as a policymaker in the 1680s Davenant distinguished himself as an economist. Though he took many of his ideas from past economists, like William Petty, he advanced upon their methods of political arithmetic and modelling. Davenant designed his theories and policies around his circular model of wealth and trade, his theory of credit and his statistical analysis of the *de facto* economy. As a practitioner he not only illustrated his ideas but also developed and refined them, ultimately using them to form economic policy and advice for England.²⁵ As Brewer (1989) states:

The partial separation of politics and bureaucracy was welcomed by many officials who cared far less about party politics than they did about working for the state. Though their motives were

²³ Davenant's personal history is also important to note. As was stated above, he was a civil servant during the period of 1686 to 1714, though this was not a continuous position. Davenant was appointed a Commissioner of Excise in 1678. The law had never provided him with a sufficient income so that in 1678 he was appointed a Commissioner of Excise. (Waddell, 1954) Davenant was appointed Inspector of Plays and was elected as an MP during the reign of James II for St. Ives in Cornwall in 1685. He was later returned to Parliament as a MP for Great Bedwin in 1698 and again in 1700. (Whitworth, 1771)

The Glorious Revolution of 1688 resulted in his removal from the Commissioners of Excise. As his career in Government came to a dramatic halt his own personal fortune, derived from his father, was obliterated. A personal loan of £30,000 made by Davenant to the Crown was defaulted on, resulting in monetary difficulties that plagued Davenant's life. (Waddell, 1954)

On the accession of Queen Anne in 1702, Davenant returned to political favour and negotiated through the Lord Treasurer Godolphin in 1703 a Secretaryship on the Commission on the Union of Scotland and England and a diplomatic post in Frankfurt for his son Henry. (Waddell, 1954) In June of 1703 he obtained the lucrative position of Inspector-General of Exports and Imports. Davenant took this to be a position of advisor to the British Government on economic policy and his *Report to the Commissioner for Public Accounts* (1712) parts one and two both include a statement of the most economically favourable policies to develop trade and increase the wealth of the nation in addition to the comprehensive and well devised statistics developed by Davenant.

²⁴ The most notable exercise in this mathematical method came in the Davenant-King Law of Demand, which was one of the first formulations of the law of demand in the history of economic thought.

²⁵ Davenant's financial problems and political concerns resulted in a life-long friendship with John Brydges (a Member of Parliament and friend of Marlborough, see Davies & Scofield (1941)). This friendship would be an important part of his access to the Government and involvement in policy decisions. He was part of a group of people that believed in the importance of government service, and as stated above, his placement in the heart of economic decision-making in the 1680s and '90s resulted in his refining and developing his ideas on political economy.

somewhat different, they shared a desire for a much less politicised government service with the country politician and the back-bench MPs who attacked the growth of the executive. State functionaries had learnt from bitter experience that excessive politicking led to administrative confusion, low morale and uncertain prospects of future employment. ... They endorsed Charles Davenant's view that "while faction is suffered to continue, it is a perpetual bar to better administration; for it emboldens the bad and terrifies the good." [Davenant quoted from *Discourses on the Public Revenues...* from the *Political and Commercial...* 1.181] (Brewer, 1989: 78)

§4.3. Davenant's Monetary Theory & Contribution to the Recoinage Debate

Unlike Locke or Lowndes, Davenant saw money not as bullion but as credit.²⁶ One finds through inspection of his readings and many economic ideas that the gathering up of specie, though a concern to him, was not the aim of economic activity as it was for others, such as the authors referred to as mercantilists.²⁷ The aim of economic activity was summed up in his ideas on wealth as the quotation below illustrates. Davenant began his discussion with a statement that the position of public credit had consistently improved since 1667.²⁸ He further developed the credit system as a circulating system of flows, much like Sir William Petty's description, but noted that there were failures preventing the circulation of credit all over England. Davenant considered money to be an important factor in the economic system, like Petty, and understood that the lack of access to money, or for that matter credit, damaged the economy, led to unemployment and reduced the produce of the nation. Credit was needed as trade expanded and England was exposed to competition from the rest of world. The core principles that guided Davenant's ideas came from an interpretation of money as something that is used as means of exchange rather than the definition of wealth. He made this point of view quite clear in the following statement:

... for gold and silver are the *measure* of wealth; all things dear or cheap as that sort of wealth is wanted or abounding, and in all countries of the world where money is rare and scarce the product of the earth is cheap; as for instance, in Scotland, Ireland, the Northern Kingdoms, Germany and most parts of Asia and America The intrinsic worth of England is beyond its purely debts and money it is in its land and stocks of all kinds. (Davenant, 1771: 1.160)

Davenant's theory of money was steeped in the concept of monetary flows, originating through the wealth that trade provides (which he calls the foundation of credit). Money was part of the economy. It was the measure of the economy; it was a source of growth by providing a basis for credit, but unlike what Smith and others maintained in their polemics against the Mercantilists, it was not the economy itself.

²⁶ This is not immediately apparent from his works, where he tends to be less than consistent.

²⁷ The main reason for his interest in specie may be a direct result of the economics of war, when gold and silver (even as recently as World War II) are the only medium of exchange.

²⁸ An interesting note comes from his comment that trade between nations took place even in the absence of specie, an indication of the move of the economy towards a more fiat based monetary system. He outlined that those that desire to charge high rates of interest are doing damage to the public good and to the government. Monetary systems due to this failure must be regulated in such a manner that the government finds it easy to gain access to credit and at a reasonable rate of interest.

Davenant took the idea of monetary flows and brought it to a new level by his application to feasible policy recommendations.

Money, to Davenant, was a tool of economic growth and a signal of stability. The use of economic factors (fiscal policy, monetary policy, currency, taxation) as tools in policy making was a giant leap from the previous English authors to modern economics. Previous authors used money as the object of policy; the law was the agent and catalyst of change. Davenant went further - he used money and credit as the agent and catalyst of change for the objective of expanding output and employment. Davenant went beyond Petty by applying theory to reality directly, by trying to make a scientific study of the natural laws of the market and then to use these laws to change the final outcome of the market over time. By understanding the actual mechanisms that govern the economy he took a radical new step in policy making away from the earlier position of legally imposing order on "disorder" The old method of coinage laws and the proposal of Lowndes and Locke attempted to alter the monetary system without regard for context within which it functioned. Davenant advocated using the forces of natural law to bring a more favourable order (or to be more economically correct - equilibrium) on what he knew to be either an unfavourable order (high unemployment/low output) or legally induced "disorder" (laws governing commerce distorting the market mechanism towards an inefficient outcome).

Though Davenant's work in its published form illustrates an astute mind, the place where his monetary ideas find their most coherent and powerful representation is in his unpublished manuscripts *A Memorial Concerning the Coyne of England* (1695) and *A Memoriall Concerning Credit* (1696).²⁹ Davenant's work relies heavily on the use of biological analogy, a key aspect in the terminology of later authors in the description of the economy and the monetary system. His views on money and trade in *Coyne* show how Davenant understood the nature of a money economy and that money is not the wealth of the economy but only a part of the general system, yet an integral and necessary part of that system. In his comments on the problems with the specie money of England during the Nine Years War he made an important connection between the actions of trade and the sustaining of stable economy and political establishment.

²⁹ Both manuscripts were letters to the Lord Treasurer of England on matters concerning economic policy decisions by the Government.

This Commerce of Money does not only arise from Trade but often from Warr, When a Prince has an Army to pay in Forreign Parts, that does require greater Summs then the Balance of Trade with that Countrey can answere, Trade and Money are in their Nature so mixed one with the other that it Seems Impossible to consider them apart with any Effect conducive to those Ends proposed by the Government

Trade and Money are like Blood and Serum, which tho Different Juices, yet run through the veines mingled together

And this present Corruption of our Coyn is like a dangerous Ulcer in the Body Politick which is never to be thoroughly Cured by applying Remedies to the Part, but by mending the whole Mass of Blood which is corrupted. (Davenant, 1942: 8)

The price-specie-flow-mechanism is also illustrated in Davenant's works. Although this framework is largely attributed to David Hume (see Humphery (1986)), and in recent research to Richard Cantillon and John Law (see Murphy (1986, 1997)), it can be found in *Coyn*. This framework was considered one of the hallmarks of "Classical" economic thought within the context of specie based monetary system.³⁰ The germane question at the time was: how does a specie monetary system adjust to inflows and outflows of gold and silver? Davenant, in *Coyn* showed a rudimentary codification of the price-specie-flow-mechanism, and, in addition, he outlined the principal concerns and uses of money,³¹ although he does fall into some of the commonly held errors of his time:

³⁰ The price-specie-flow-mechanism, in its moderm assembly, is a long-run adjustment mechanism for the effects of specie exports and imports. An excess of imports results in specie exports in the short run. This loss of specie causes the money supply of the country to be reduced. The reduced money supply causes a reduction in the price level. This conclusion follows forth from the Quantity Theory of Money. This theory has its origin in the Spanish authors in the mid 1500s and the School of Salamanca, so would have been readily accessible to Davenant at the time he was writing. (See Dempsey (1935) and Hamilton (1934) for more information on the formation of the Quantity Theory.) The Quantity Theory holds that with a lesser quantity of money, consumption will be reduced (given that money supply must equal money demand), but with unchanged levels of output of goods and services prices are lower. The reduction of prices as a result of the outflow of specie is the key to the long-run adjustment mechanism. The lower prices subsequently result in the increase in exports, as the home country gains a competitive price advantage. Additionally, there will be a reduction in the level of imports as they become less competitive vis-à-vis the domestically produced output. The combination of cheaper domestic goods and reduced demand for imports the result was that there was less foreign exchange demanded at each rate of foreign exchange. This system was to bring about the natural adjustment of a country's prices level and specie levels as a result of specie imports and exports. (Kindleberger, 1963) The theory stated above would have been revolutionary at the time since it represented a stark departure from the Balance of Trade theory that specie inflows via a constant balance of payment surplus were desirable.

³¹ With respect to the Quantity Theory of Money in this context, Davenant does have in mind such a framework but it is only in a rudimentary state. In his other manuscript, *Credit*, Davenant makes strong allusions to the Quantity Theory, especially when he affirms Petty's position on the circulation of money.

Sr. William Petty was of opinion that to transact the Common business of this Nation so much Coine was needful as would pay half a years Rent of all the

Davenant stated his monetary assumptions as his introduction to his response to Godolphin's questions on recoinage:

That the Importers who cannot Satisfie their Balance with Commodities must do it with Money or with Bullion

That if the Merchant can get more by sending money or Bullion then Good he will make his Returnes by Money or Bullion.

That Gold and Silver tho. they are the measures of Trade are themselves but a Commodity

That the Nation which is not Superior in Trade can never Sett the price upon Bullion.

That whatever price any Countrey setts upon its own Coine it will be Esteemed with other Nations but at its Intrinsic value

That in the Naturall Course of Trade each Commodity will find its price. (Davenant, 1942: 12-3)

In this quotation, Davenant showed the price-specie-flow-mechanism concept in the way he separates the concerns of monetary inflows and outflows from the detriment of the overall welfare of the State.

Tis true that gold and silver tho' they are the Measures of Trade, are themselves but a Commoditye, and may be Trafficated and exported, either Coined or uncoined like other Commodityes without any Damage to ye publick. But this hold onely in Countreys which have means of inviting Bullion to them, as well as occasions to carry it abroad, and cannot hold in that Countrey which carries it out only to pay a dead loss, or a dead expence. (Davenant, 1942: 39)

Davenant stated that despite all concerns, trade was still the most important aspect of the English economy. He made the important statement of the need for trade and that England existed as a "price-taker": a small open economy in late seventeenth-century Europe. As he maintained, "...we are a Tradeing Nation, all our Interests are closely linked with the Interests of Trade. The product of our Lane must be guided and ruled by or Forreign Commerce, Almost whatever our Soile produces must be valued here at the Price which the Luxury or Necessities of other Nations put upon it." (Davenant, 1942:17) The

Land. A Quartr. Rent of ye houses. A Weekes expence of all y- people, and a Quarter of the Value of all exported Commodityes. This computation seems exceeding well grounded, and answers almost exactly to that sum *viz.* we were reckoned to have in yr Kingdome before the Warr. (Davenant, 1942: 103)

question that Davenant attempted to address in *Coyne* was whether the effects of an edict-driven change in the value of the coin would be felt by the economy of England. Davenant stated that this change would have no effect on English trade. He saw the adjustment as natural and near instantaneous, resulting in no disruption of the flow of trade. The intrinsic value of the specie would remain the same, an ounce for an ounce, whereas the change in the extrinsic value of the currency would be dealt with by changes in the prices of commodities. "No man can buy by one valuation of Mony, and sell by another." (Davenant, 1942: 21) He expanded:

And since all these things are so necessary to the Being or well being of Life, they must be had at what ever Rate they Cost: Nor can Law Interpose in this Matter with any effect, for in the Naturall Course of Trade, Each Commodity will find its Price. (Davenant, 1942: 21)

Davenant had a well-developed view of the market for capital, both physical and liquid capital, in addition to his hypotheses on the nature of specie flows. The rental rate of capital, or the price of that capital, was illustrated in a rather modern, quite "Classical" fashion. The idea of the tenant-landlord relationship as described by Davenant has much in common with Cantillon's view of the circular flow of income.³² In addition to utilizing his own calculations to make his point throughout this section of *Coyne*, Davenant clearly illustrated the rationale behind the hiring of capital and the letting of capital, which was similar to the Marshallian description of investment. The only modern aspect lacking in his description of the functioning of the rental rate of capital was his exclusion of risk factors, in an explicit fashion.

In Letting Land for Rent, as in other Bargains the Mutall worth of each, are compar'd together and Consider'd. The Tenant takes the Land because it brings forth such Commodities, as in the Markett will yield him such a price, wherewith to sustain himself and to Pay his Rent. The Landlord lets it because it yields such Commodities, and he thinks with such Rent to Maintain his usuall Port, and manner of Living. (Davenant, 1942: 23)

³² This idea, with its extension to trade between nations, finds its clearest statement in *Coyne* here:

For as We have Observed before, The Commerce of Money by Exchange goes in a Circle, and a Debt in Flanders may be paid by Commodities sold in Turkey or in Spain. And if this Trade had proceeded in its usual Course, We might during this War have kept a great part of Our Money still in the Kingdome. (Davenant, 1942: 58)

Davenant used this definition to illustrate that the rental price of capital cannot be dictated by law, as no individual will take a loss on their capital or their produced commodities even if the State attempts to force that person to do so. If the State were to attempt to engage in such a practice it would be detrimental to the overall economy as the contracts between tenants and landlords would begin to breakdown, especially "That the greatest part of Trade, both fforeign and Domestick, is allwayes carryd on by Credit." (Davenant, 1942: 25) This position on the creation of credit was further developed by Davenant when he came to describe the state of English commerce, as the transactions were performed via credit and bills of exchange.

...for as the publick deals with the people by giving Tallyes or Bank Bills, for Goods and Money, so the people deal among themselves by assigning or transferring to one another those or such like securities, which have no existence but in Credit, publick or private by which the bulk of Trade is carryed on; The Species rarely Intervening; Just the same thing being practiced in Holland, and in severall States of Italy.

These sort of securities are already equall to the running Cash, and if the supplies to be given hereafter consist (as tis likely they will) in Credit upon remote ffonds they will far surmount it and grow the governing Wealth of ye Nation may be carry'd on in whatsoever condition the Coyne remaine. (Davenant, 1942: 45)

In *A Memoriall Concerning Credit*, Davenant again provided a more developed look at his theory of credit than what is afforded in his later works. *Credit* has two very useful aspects for students of Davenant or of any late seventeenth-century monetary theorist – first, it provides a portrait of the functions of credit and fiat money and, second, it includes an invaluable description of the functioning of the wartime English monetary sector. The necessity of money (be it fiat or specie) and credit in the economy was clearly stated by Davenant, and was similar to the view of money that Hume would make in his *Political Discourses* (1752). Hume felt that money oils the wheels of commerce and that without it commerce would grind to a halt. Petty stated that it was the fat on the body-politick. In his mention of the necessity of money and credit Davenant continued with this line of thought:

2dly. - If there should be a want of Species, and of Credit, there must happen a generall decay in the fforraigne Trade and Manufactures of the Kingdom. The spring and originall of all our Commerce abroad, arises from the Materialls that our soil produces, and those Commodities which from thence are manufactured. If the stock of 30. Millions formerly running in Credit be much diminished, and if the species of mony be likewise wanting to carry on the Minuter business in ye Market, and for payment of labouring men and Artificers, the Manufactures of the Nation must stand still, and if We have not Goods to export, we must expect no Importation, but such as shall be destructive to us. Numbers of men, Industry, Advantagious situation, Good ports, skill in Maritime affaires, with a good *Annuall* Income from the Earth are true and lasting Riches to a Country; But to put a Value upon all this, and to give life and motion to the whole, there must be a quick stock *running* among the people, and alwayes where that stock increases, the Nation growes strong and powerfull; and where it visibly decays, that decay is generally attended with. publick Ruin. (Davenant, 1942: 72)

Davenant had bridged the gap between the "Mercantilist" and "Classical" world in this statement.³³ He later stated in his manuscript that the Government should not default on its loans, as this would undermine confidence in the credit of England. If the public were to lose faith in the sustainability of the debt held by the State, then the entire system would "...sink all Sort of Credit, and with it's ruine, hazard the very being of the Government." (Davenant, 1942: 78) This was similar to the predictions of modern macroeconomists with respect to unsustainable debt in developing countries. If there is a falter in confidence capital flight takes place. This results in a credit crunch (Bernanke & Lown (1992)) that undermines the real economy as well as destroying the monetary sector.

The final monetary innovation of Davenant was his outline of how a fiat money system would work in England, under the auspices of the early notes of credit and bills of exchange that began the development of the paper money system. As Davenant's concern at the time was the maintenance of the paper money system that flourished in wartime England, he outlined the functioning of that system. Seeing the specie standard slowly being corrupted over the 1690s, Davenant observed the economic activity continued due to the ability of financial instruments to provide

³³ Davenant took a point of view that was different from most of his contemporaries. He felt that the economy was governed by natural law, and that to intervene in the economy would be a contravention of the natural order. This was a policy that later became the hallmark of Adam Smith.

liquidity and capital in the absence of the traditional specie system. Davenant's view of this new monetary system that was to become the foundation of the financial revolution is summed up as follows:

To make those Credits pass Currently from hand to hand (and so become in the nature of a new Stock in the Nation, where with the People may trans-act their Bargaines) they must be Secured upon Solid and Substantiall Fonds, In the Same Manner for Debts hereafter to be contracted, Such Talleys as are proposed to go in Payment of the Army, the Fleet Ordnance, Civil List or for Stores, or for repayment of Money actually to be lent should be place upon Such Fonds as will every Year Clear off the Interest, and a certaine proportion of the P'rincipall. If Such Fonds can be found out and Sett afoot the Tallies Struck thereupon will be as so much new Stock in ye Kingdome and because they carry Interest with them, may perhaps in time be more esteemed then money it selfe, and if Tallies can obtaine their former Esteeme and value, Paper Credit of all kinds will revive of Course. (Davenant, 1942 (1696): 97)

Providing one of the earliest and clearest statements on the nature of paper money functioning in an economy, Davenant showed himself to be a master theorist. The interesting part of this statement on the monetary system is that Davenant described an empirical reality; the monetary system had largely been taken over by paper credit as specie flowed out of England and alternative methods were required to engage in efficient trade. The Bank of England was still quite new and lacked the ability to weather a significant crisis. It became more and more apparent that the costs of the war with France were finally beginning to compromise England's economic viability. As Dickson (1967) stated, the structures that were to dictate eighteenth-century finance were already in place. Davenant perceived these new structures and his views on credit and the monetary sector were descriptions the first creaking motions of this new engine of economic growth.

The considerable treatment of Davenant's monetary theory above is by no means complete. What has been described are the basic concepts that he had with regards to money and credit in England in the 1690s. His contribution to the Recoinage debate enables the reader to come to a greater understanding of the questions that were being faced by the policymakers at the time and see the questions the Lord Godolphin faced. Davenant was able to see how new developments in public finance and private credit markets had changed the economy of England. The specie system was a reality but new

fiscal and financial instruments were altering the character of that system. Gold and silver coin were very important but as a monetary base, money's definition was expanding to include other media. Davenant's proposals enable the reader to understand this development process and provide insights into why his proposal was rejected and Locke's accepted. The movement away from a pure specie system to a modern financial architecture was difficult for policymakers to understand. Davenant, was one of the few that did, though the influences of political patronage and a lack of understanding of monetary economics resulted in his ideas being considered only by Lord Godolphin, who despite his rank in the Commons was not favoured by the King. In the next section I will look at the aftermath of the recoinage and the foundations for the English Gold Standard.

§5. The Aftermath – Institutional Difficulty and Economic Collapse

The monetary effects of the demonitization were not only limited to the problems of the transactions demand for money. Demand for hard cash rose as a crisis of confidence took over the minds of depositors at the Bank of England. Already weakened by the losses due to the exchange rate depreciation of 1695 and the management of Continental remittances to William's army since 1694, the Bank had little hope of sustaining itself in the presence of a considerable bank run. The demonitization had destroyed all the remaining confidence in English coinage and depositors of the Bank of England demanded that their bills be honoured in specie.³⁴ The result was a classic credit crunch - as the demand for specie payments outstripped supply the run became a self-fulfilling prophecy and the Bank of England was faced with collapse. Rose states:

On 6 May, two days after the final demonitization of the clipped coin, a run on the Bank by cash-hungry depositors jeopardized its liquidity. Nor was the Treasury able to help the Bank in its hour of need, for the state's cash reserves remained locked up in the demonetised clipped coinage. Faced with the prospect of imminent financial collapse, the Bank swallowed a bitter pill. In early July it reneged upon its commitments to Continental creditors. At a stroke, confidence in English credit evaporated, leaving the army paymaster in Flanders penniless. Not until October was the Bank able to resume remittances to the army, and then only thanks to a substantial loan from a worried Dutch government. (Rose, 1999: 141)

As the monetary sector continued to violently contract, the bimetallic situation continued to worsen. The price of the golden guinea had risen too high and was causing additional stress on the Mint and on the monetary and real sectors of the economy. Newton proposed that a price ceiling fixed at 22s. This legislative action was to become only one subject of the great outcry in the Government on the mishandling of the recoinage. As the King left in the spring of 1696 the country was in the grip of a liquidity crisis (one of the first "modern" economic crises) and inadequacy of the measures implemented by the Government to retain the old standard were becoming rapidly apparent. As seen in Figures 3-6 the state of the national accounts,

³⁴ As Davenant had stated in his recommendations, the base of credit was specie, but that specie was now being altered causing a crisis in confidence. The Bank of England's bank run was a result the recoinage as depositors attempted to transfer the notes of the Bank for hard currency. The resulting credit crunch was like that of Davenant's predictions.

borrowings and coinage was deteriorating. Borrowing supported the war effort by 1695, revenues were falling short and the intrinsic metal content of the coinage had fallen to new lows. This grave situation was to be remedied by Recoinage Act, but as William left for war, it was more than apparent that the worst was yet to come. The Mint was terribly unprepared for the Act and Newton had only £700,000 of new milled coin on hand to reissue as £4.7 million had been brought to the Exchequer at that stage for transfer. (Horowitz, 1977) The lack of preparation by the mint was the result of a policy of staff reduction at the Royal Mint in London when mass quantities of new coinage were not required.³⁵

The monetary collapse that ensued not only damaged the credibility of the Bank of England, but also resulted in the creation of new systems of payment.³⁶ Bank of England notes had ceased to be a viable alternative to specie as the Bank defaulted and its bills were being heavily discounted. One statement by the Duke of Beaufort is telling on how grave the situation in London had become by the 5 May, 1696:

...at this time all money is refused unless it be new money or very broad, of which there is but little stirring. I was forced to enter my name in a book to pay for my dinner, for they choose rather to trust than take even passable sixpences. The Exchequer had a double guard these two days, and the common people being to grow a little mutinous. (Beaufort quoted in Horowitz, 1977: 180)

The failure of silver as a medium of exchange left a gap which was filled by the golden guinea. It became the principal transactions currency during the recoinage, despite the fact that it was an extremely high denomination of anywhere between 30s. to 22s. in 1696. The demand on guineas and gold completely changed the market for bullion in England, with the price of gold and the price of guineas rising rapidly. This resulted in a gold inflow into England and a continued silver outflow. The eventual effect of this preference for gold was that it would take over the position of silver as the principal currency of England, as the price of gold and the guinea went to £4,18s. an ounce and 28s. 4d. respectively. Gold inflows to England dominated the concerns of the dealers on the Continent and guineas rapidly became the standard means of payment.

³⁵ Mint facilities were still recovering from the disruptions of the republican period as well.

³⁶ This was important since it undermined confidence in Bank of England notes, causing the domestic bank run and eliminated the trust that foreign lenders had in the institution, as the risk profile of the Bank of England rose following default. In fact, by 1698 the stock price was well above par.

By 1717, when Newton was Master of the Mint and Davenant and Locke were both long dead, the quantity of silver coinage had all been reduced to small change. The overvaluation of the guinea was not fully rectified until Newton's final reduction to 21s. By this time the quantity of gold coined was far outstripping that of silver and in 1717 £15,186 of gold were coined and only £948 of silver. This created a mono-metallic standard, the famous British Gold Standard.

Figure 7. 1698 Guinea - The embodiment of the new gold standard.



Figure 8. New Post-Recoinage Silver Crown



§6. Conclusion

The Great Recoinage was an example of early modern economic policy at work. The objective of the Great Recoinage was to correct for the problems of a debauched silver specie coin system. England's clipping and subsequent recoinage enabled it to continue with war, and gain a respectable peace with France. The importance of the Great Recoinage is that it advanced economic theory and strengthened the monetary system and institutions of England.

England in 1696 had much in common with the collapsing economies of SouthEast Asia in 1997. The attack on the English currency through silver arbitrage resulted in a massive default. The attack on the Thai currency was equally detrimental. All currency speculations are based on a battle with the central bank (or lender of last resort). The recoinage had been ill thought out and the proposals of both Locke and Lowndes were destined to result in an outflow of silver. The proposal for devaluation submitted by Lowndes was rejected and the silver specie focused policy of Locke was adopted. This resulted in an overvaluation of guineas and continuing arbitrage of silver bullion out of the country. The monetary effects of the Bank of England default were substantial: England's economy stopped for most of 1696, resulting in massive unemployment, poverty and civil unrest. (Horowitz, 1977)

To treat the recoinage as only the product of Lowndes' and Locke's minds is insufficient. They led the debate, with Newton left to execute the plans of the Government. Newton's errors in the valuation of guineas gave England a *de facto* gold standard. The monetary ideas that were created and expanded upon during the recoinage formed the foundations of eighteenth-century monetary thought. Lord Godolphin, who usually is thought to have considered only the opinions of Locke, Lowndes and Newton, also gave some attention to the ideas of many of those in authority at the time such as Charles Davenant. The Bank of England, paper credit, bills of exchange, the role of silver and gold, the need for specie and the ideas of free trade the favourable balance of trade were all put to the test in these writings. As Sterling was recreated as a mono-metallic gold based currency and the Bank of England regained the respect and power it lost in the 1696 default, monetary theory advanced. As with South-East Asia, crises have the ability to strengthen surviving institutions and encourage

innovative financial instruments. England's financial system was able to weather the wars of the early eighteenth century due to the discipline and lessons of this difficult period. In the area of economic theory, the writings of Davenant began a debate on the future of paper credit and economics that would continue throughout the eighteenth and nineteenth-century.³⁷

This paper has attempted to address the ideas and policies of the Great Recoinage, with special attention to the work of Charles Davenant. The ideas and comments by Davenant illustrate the rapid development of monetary theory at the time of the Recoinage. The Recoinage served the purpose of correcting the problem of clipping but inadvertently created the British Gold Standard. Charles Davenant's work on coin and credit makes all the more apparent the depth of the "Financial Revolution" described by Dickson (1967) and casts light on the importance of the Great Recoinage in the history of Britain, the development of Sterling and the history of economic thought.

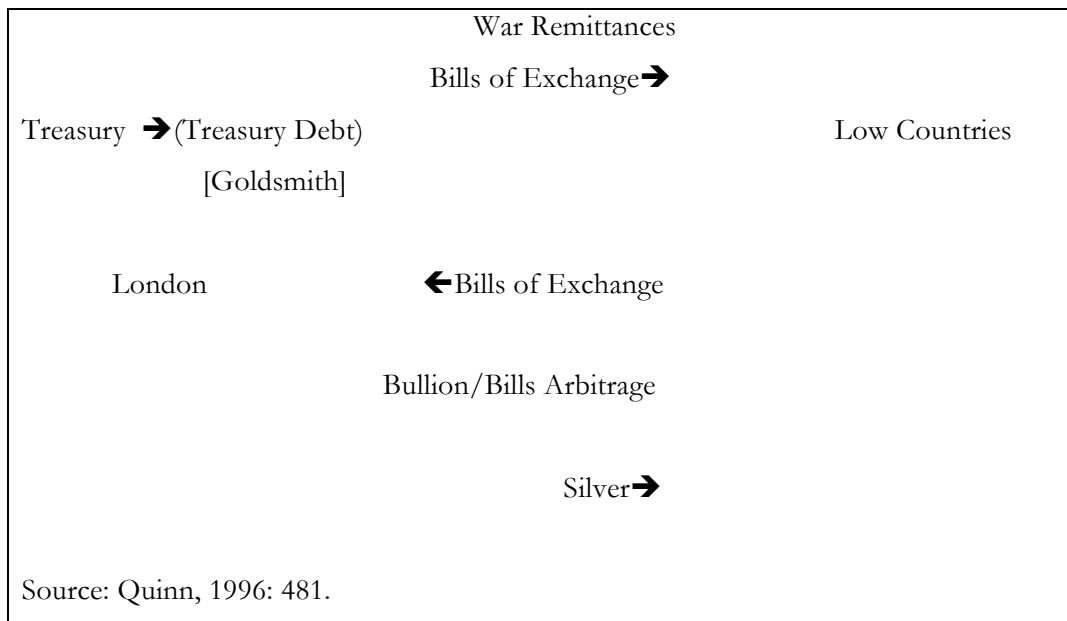
³⁷ Later publications like the Charles King's *British Merchant* (1721) and Daniel Defoe's *The Mercator* (1721) discuss Davenant on trade and money. Whelwell (1850), Jevons (1871) and Wicksteed (1889) draw heavily on Davenant's theories.

Appendix I.

A brief description of arbitrage system in place during the period leading up to and during the Great Recoinage

A simple approach to discussing the arbitrage situation between England and the Low Countries is to look at the following action of a goldsmith. Goldsmiths were predominately middlemen in the arbitrage market for silver. The goldsmiths would purchase silver (from various sources) and then export it to Amsterdam where they would purchase gold. This gold would then be sold to the Mint for a profit. Their actions were overlooked for most of the war since goldsmith had been the major source of credit for the Crown. (Quinn, 1996).

Figure AI.1



The figure above illustrates how a goldsmith would use bills of exchange to profit from the gap between the silver and gold prices at the Mint in London and in the Low Countries. In the 1690s the difference amounted to approximately 4.3%. Travel costs added a further 3% and Wisselbank (main foreign exchange bank of Amsterdam) fees added a further 0.5% and English fees could add a maximum of 1.5%. This resulted in a profit of 0.3% at the best of times. If bills are added, if the exchange rate for bills falls in Amsterdam then the London merchant or goldsmith will have cause to use silver exports. The gold/bills of exchange return in May 1686 was as high as 10.24% *per annum*, between 1689 and 1695 over 8,402,078 troy ounces of silver left England and a

further 9,174,220 troy ounces of silver was removed from English coin for export purposes. (Quinn, 1996) In this way the clipping of the silver coin of England went from a minor problem to one that threatened to undermine the entire English economy.

Appendix II.

Some tables relating to the English monetary situation of the late seventeenth century.

Table 1.

Definition under the English Specie Standard:

A Pound of Gold, Troy Weight, was divided into 24 Carats; and each Carat into 4 Grains: And that the Old Standard of England was, 23 Car. 3 Grains and a half of fine Gold, and a half a Grain of Allay, which might be Silver or Copper. (Fleetwood, 1707: 24)

Pound of Gold								
Year	<i>Fineness</i>		<i>Allay</i>		<i>Make in silver</i>			
	Car.	Gr.	Ca.	Gr.	l.	s.	d.	
12 Car 2	22	0	2	0	44	10	0	
1 Jac 2	22	0	2	0	44	10	0	
W & Mar.	22	0	2	0	44	10	0	
Q. Anne	22	0	2	0	44	10	0	
2 Car 1	23	3.5	0	0.5	44	10	0	
2 Car 1	22	2	2	0	41	0	0	

Source: Fleetwood, 1707: 25

Table 2.

What a pound of silver is worth									
Years	<i>Fineness</i>		<i>Allay</i>		<i>Shillings</i>		<i>Ounce worth</i>		
	Oz.	Dw.	Oz.	Dw.	s.	d.	l.	s.	d.
1 H 8	11	2	0	18	45	0	0	3	9
34 H 8	10	0	2	0	48	0	0	4	0
36 H 8	6	0	6	0	48	0	0	4	0
37 H 8	4	0	8	0	48	0	0	4	0
1 E 6	4	0	8	0	48	0	0	4	0
3 E 6	6	0	6	0	72	0	0	6	0
5 E 6	3	0	9	0	72	0	0	6	0
6 E 6	11	1	0	19	60	0	0	5	0
Q. Mary	11	0	1	0	60	0	0	5	0
2 Eliz	11	2	0	18	60	0	0	5	0
19 Eliz	11	2	0	18	60	0	0	5	0
43 Eliz	11	2	0	18	62	0	0	5	2
Jac 1	11	2	0	18	62	0	0	5	2
Car 1	11	2	0	18	62	0	0	5	2
Car 2	11	2	0	18	62	0	0	5	2
Jac 2	11	2	0	18	62	0	0	5	2
W & M	11	2	0	18	62	0	0	5	2
Q. Anne	11	2	0	18	62	0	0	5	2

Source: Fleetwood, 1707: 53-4

Table 3.

The Exchange, Molten Silver Export, Silver Coin and Silver Plate Making

Molten Silver Export

Calendar Years	Gilder Exchange (+/- % of Par)	To Europe (oz)	Deficiency in Metal Content		Annual Deterioration of Metal Contents (%)	Silver Hallmarked at Goldsmith Hall, London (oz)
			To East (oz)	of Silver Coin (%)		
			At June 21 st		June-June	
					6/1683	
1/1684	3.92		21/6/1684		6/1684	719091
1/1685	3.66		21/6/1685		13.136/1685	1.71
1/1686	3.58		21/6/1686		11.426/1686	-1.06
1/1687	3.37		21/6/1687		12.486/1687	-2.84
1/1688	0.63	670900	23400021/6/1688		15.326/1688	-0.66
1/1689	.	1360000	3200021/6/1689		15.986/1689	-2.84
1/1690	.	2400000	21/6/1690		18.826/1690	-2.38
1/1691	-1.44		21/6/1691		21.26/1691	-6.3
1/1692	0.2		21693821/6/1692		27.56/1692	-5.77
1/1693	-3.29	832554	33657121/6/1693		33.276/1693	-6.58
1/1694	-6.11	2444149	5749021/6/1694		39.856/1694	-9.54
1/1695	-14.42	407046	77043021/6/1695		49.386/1695	-5.58
1/1696	-9.27	6754649	164793821/6/1696		54.976/1696	
		Total	8402078			

Source: Jones, 1988: 232-3

Table 4.

An Account of the Value of Silver and Gold Exported: The Silver being computed at 5s. per Ounce, and the Gold at 4l. per Ounce

	Silver	l.	s.	d.	Gold	l.	s.	d.
Michaelmas 1696, to Michaelm. 1697.		40244	5	0		6872	0	0
Michaelmas 1697, to Michaelm. 1698.		455097	0	0		9540	0	0
Michaelmas 1697, to Christmas 1698.		237072	8	9		1967	0	0
Christmas 1698, to Christmas 1699.		841881	0	0		29229	0	0
Christmas 1699, to Christmas 1700.		811896	17	6		13417	0	0
Christmas 1700, to Christmas 1701.		735110	10	0		16428	0	0
Christmas 1701, to Christmas 1702.		434015	0	0		6209	0	0
Christmas 1702, the Christmas 1703.		401109	7	6		45664	0	0
In 7 Years and a quarter Exported Total Silver		3956426	8	9	Total Gold	129326	0	0
Total of the Value of Silver and Gold Exported in 7 Years and a quarter						4085752	0	0

Source: Davenant, 1710: 106.

Table 5.

The Coinage of Gold and Silver 1558-1694, by Reign											
		Beginning of Reign	Gold Sterling valued at £3 17s. 10.5d. Per oz.			Silver Sterling valued at 5s. 2d. per oz.			Total Sterling Value		
			l.	s.	d.	l.	s.	d.	l.	s.	d.
Elizabeth		1558	4,440,534	14	9	4718569	2	8.5	5513210	8	2
James I		1603	354096	10	8.5	1765961	14	10	5432351	15	9
Charles I		1625	3666389	5	9	8776544	10	3	12096221	16	0
Parliament	Oliver, etc.	1649	72574	18	8.25	383294	15	4.25	455809	14	0.5
	Total		7853213	8	9.75	15644380	3	1.75	23497593	11	11.5
	Average		86299	0	0	171916	0	0.	.	.	.
Charles II		1660	4346567	10	7.5	3177537	7	9.25	7524104	18	4.75
James II		1685	2219320	17	7.5	518316	9	5.25	2737637	7	0.75
William and Mary		1689	465505	14	3.25	79026	9	4.75	544532	3	8
Total			7031391	2	6.25	3774880	6	7.25	10806274	9	1.5
Average (45 Years)			155853	0	0	83886	0	0.	.	.	.

Source: Li, 1963: 30.

Table 6.

Silver in Circulation

Reign	Amount of Silver Coined			Amount Still in Circulation in 1693
	l.	s.	d.	
Edward VI and Mary	500000	0	0	290000
Queen Elizabeth	4632932	3	2	1010000
James I	1700000	0	0	700000
Charles I	8776544	10	3	5000000
James II, Charles II and Money Coined from 1648 to 1660	4203628	5	10	3000000
William and Mary to 1696	115956	15	6.	
Total	19729061	14	9	10000000

Source: Li, 1963: 31.

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