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# A Comparison of Transactions in Conventional and Islamic Economies

Mabid Ali Al Jarhi\*

## ABSTRACT

This paper compares the transactions costs in two economies, one conventional, the other Islamic. The conventional economy is characterized by borrowing to finance some current purchases, while the Islamic economy disallows interest-based lending and operates on the basis of universal banking that mixes commerce and commercial and investment banking. To finance current purchases, it provides customers with credit purchase agreements, which entail that the bank buy the commodities and assets from suppliers and resell them on credit to customers satisfying conditions of creditworthiness similar to those that conventional banks require for borrowers. The paper uses simple calculations to compare transactions costs in both economies. It argues that under competitive competition, credit purchase arrangements occasion lower transactions costs than borrow-and-purchase arrangements in the conventional economy. The most important implication is that a policy that lifts entry barriers in the Islamic banking market and allows banks to combine commerce with banking activities contributes to social welfare. The paper concludes with suggestions for further points of research.

## I. INTRODUCTION<sup>i</sup>

This paper compares the transactions costs in two economies, one conventional and another Islamic. The conventional economy is characterized by borrowing as a means of financing some of the current purchases. The Islamic economy does not allow interest-based lending.<sup>ii</sup> Its banking system operates on the basis of universal banking that mixes commerce, commercial and investment banking together. It provides customers with an alternative means to finance current purchases, namely *credit purchase* arrangements. Such arrangements entail that the bank purchases the commodities and assets from their respective suppliers and resells them on credit to customers satisfying conditions of credit worthiness similar to those required by conventional banks for borrowers.

The paper uses simple calculations to compare the transactions costs in both economies. It argues that under competitive competition, *credit purchase* arrangements would carry less transactions costs than *borrow and purchase arrangements* in the conventional economy. The most important implication is that a policy that lifts entry barriers in the Islamic banking market and allows banks to combine commerce with banking activities would contribute to social welfare. The paper concludes with suggestions for further points of research.

## II. REAL TRANSACTIONS

Real transactions are defined as the purchase of real commodities and assets against spot or future cash payment.

### A. Spot Purchases of Commodities and Assets

Economic agents would exchange money directly for goods, services, and assets. Such transactions can be termed *real transactions, type I*. Their total value is a function of output (the available flow of goods and services  $Y$ , prices  $P = \{p_i\}$  as well as transactions costs.<sup>iii</sup>

*A priori*, the conduct of the above transactions will cost some resources. The cost per transaction in the  $i^{\text{th}}$  commodity is defined as  $(v_i)_Y^y$  and in the  $i^{\text{th}}$  asset as  $(v_i)_Y^a$ . The total cost of real spot transactions can be defined as the sum of spot transactions in goods and services plus the cost of spot transactions in assets  $V_Y = V_Y^y + V_Y^a$ . This in turn can be written as:  $V_Y = \sum_{i=1}^N (v_i)_Y^y + (v_i)_Y^a$ , where  $N$  is the number of either commodities (goods and services) or assets, whichever is largest.

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Total transactions of type I would be equal to the value of spot transactions in commodities  $T_Y^Y$  plus the value of spot transactions in assets  $T_Y^A$ , i.e.,  $T_Y = T_Y^Y + T_Y^A$ . Given that the value of transactions in the  $i^{\text{th}}$  commodity is equal to its price,  $p_i^Y$  multiplied by its quantity,  $y_i$ ,<sup>iv</sup> and the value of transactions in the  $i^{\text{th}}$  real asset is equal to its price  $p_i^A$  multiplied by its quantity  $a_i^Y$ ,  $T_Y = \sum_{i=1}^N p_i^Y y_i + p_i^A a_i^Y$ . Similarly, the total value of transactions in commodities can be expressed as a function of commodity current prices  $P^Y = \{p_i^Y\}$ , their expected prices  $\bar{P}^Y = \{\bar{p}_i^Y\}$ , total income  $PY$  as well as their transactions costs  $V_Y^Y$ .

$$T_Y^Y = T_Y^Y(P^Y, \bar{P}^Y, PY, V_Y^Y) \dots\dots\dots(1)$$

Similarly, the total value of transactions in assets  $T_Y^A$  can be expressed as a function of asset current prices  $P^A = \{p_i^A\}$ , their expected prices  $\bar{P}^A = \{\bar{p}_i^A\}$ , their current rates of return  $P = \{\rho_i\}$ , their expected rates of return  $\bar{P} = \{\bar{\rho}_i\}$ , total income  $PY$  as well as their transactions costs  $V_Y^A$ .

$$T_Y^A = T_Y^A(P^A, \bar{P}^A, P, \bar{P}, PY, V_Y^A) \dots\dots\dots(2)$$

We can therefore write the total value of real transactions type I as a function of current and expected commodity as well as asset prices, current and expected rates of return on assets as well as transactions costs.

$$T_Y = T_Y(PY, P^Y, P^A, \bar{P}^Y, \bar{P}^A, P, \bar{P}, V_Y) \dots\dots\dots(3)$$

An increase in the flow of goods and services would lead to greater volume of this type of transactions. Lower prices imply higher quantities demanded and more purchases, while higher prices would mean lower quantities demanded and more sales. In both cases, changes in prices, whether up or down would lead to more transactions.<sup>v</sup> Similarly, changes in asset rates of return would lead to more transactions. In addition, higher transactions costs imply a smaller volume of transactions.

**B. Purchase of Commodities and Assets on Credit**

In all transactions, it is possible to postpone either side of the deal: the payment of the price or the delivery of commodities. The postponement of payment is associated with buying on credit. The postponement of delivery of goods, services, and real assets against spot payment would be equivalent of purchasing a real asset promising their future delivery. This has been dealt with in the above category.

**C. Combining Commerce with Banking**

Credit finance can be offered either directly by suppliers or indirectly through banks. Suppliers would offer their customers opportunities to purchase on credit, provided they fulfill certain criteria regarding creditworthiness. In an Islamic banking environment, the same suppliers would have an incentive to offer banks standing arrangements to buy their commodities and assets for cash, most surely at a discount.<sup>vi</sup> Obviously, the sale contracts between suppliers and banks would carry less transactions costs than the corresponding multiplicity of contracts with ordinary customers. In all cases, banks would be doing repetitive purchases, presumably to satisfy customers demands. Repetition would induce banks to make standing arrangements that would reduce transactions costs immensely. In addition, when selling to banks on credit, suppliers would incur lower transactions costs, as bank creditworthiness is cheaper to ascertain than that of an individual.

In addition, banks as information specialists are capable of ascertaining individuals' creditworthiness more cheaply than suppliers can. They can also take advantage of quantity discounts when buying in bulk, as well as standing arrangements in place of repetitive contracting. This would enable banks to reduce their transactions costs of buying and then selling on credit, below that of purchasing on credit directly from suppliers.<sup>vii</sup> In addition, barring barriers to entry, distributors would also compete with banks in buying in bulk and selling to the public at a discount. Banks would therefore be forced through competition to reduce their transactions costs further.

Accordingly, we can claim that the transactions costs of credit purchase through banks should generally be less than that through suppliers, although the former involves two contracts and the latter involves one. The former would ultimately dominate the latter in an Islamic banking environment.<sup>viii</sup>

The above logic implies that the transactions costs of CP directly from suppliers  ${}^d v_y$  should be higher than that of the corresponding purchases from banks  $({}^d v_y)^b$ , i.e.,

$${}^d v_y > ({}^d v_y)^b \dots\dots\dots(4)$$

**D. Transactions Costs of Credit Purchase**

When people buy on credit, they would be receiving their purchases while providing monetary assets (promises to pay fixed sums of money at certain future times) in return. Providers of commodities and real assets on credit will require a premium over and above their spot prices, called *markup*.<sup>ix</sup> It will depend on the demand for purchase and supply for sale of the same commodity or asset on credit as well as the repayment time schedule. Presumably, markups would also be different for different commodities.<sup>x</sup> The total value of such transactions  ${}^d T_Y$  is equal to the sum of transactions of credit purchase of both goods and services,  ${}^d T_Y^y$  and of assets,  ${}^d T_Y^A$ . Both components depend on income, commodity and asset CP prices,  ${}^d P^y = \{ {}^d p_j^y \}$ ,  ${}^d P^A = \{ {}^d p_j^A \}$  respectively, markups on commodities and assets,  $U^y = \{ u_j^y \}$ ,  $U^A = \{ u_h^A \}$  as well as transactions costs,  ${}^d V_Y = {}^d V_Y^y + {}^d V_Y^A$ . Naturally, we can expect transactions costs for the same commodity to be higher for future than spot transactions, i.e.,  ${}^d v_j > v_j$ .

We can call this type of transactions *real transactions type II*. Their total value would be defined as:

$${}^d T_Y = {}^d T_Y^y + {}^d T_Y^A = \sum_{j=1}^i {}^d p_j^y y_i + {}^d p_j^A a_j^y$$

Total real transactions type II can therefore be determined through the following function, which is similar to (3) above.

$${}^d T_Y = {}^d T_Y [Y, P^y, P^A, P^y, P^A, P, \bar{P}, U^y, U^A, {}^d V_Y] \dots\dots\dots(5)$$

Transactions would continue to react in the same manner to income, prices, and transactions costs. In addition, higher markup leads to lower level of transactions.

**E. Real Transactions and Total Output**

We can draw the following implications from (3) and (5):

1. At times of changing price and rate of return expectations, traders would attempt to buy (sell) more of the goods whose prices are expected to rise (fall). The volume of transactions would therefore increase, requiring, either higher velocity or faster monetary growth. If both velocity and monetary growth stayed the same, the price level would tend, *ceteris paribus*, to decline. Most probably, the market would provide internal mechanisms to increase velocity in the face of higher transactions, as more transactions would mean a higher rate of turnover of money, and goods. We can therefore claim that velocity would be a function of price expectations as well as the volume of transactions.<sup>xi</sup>
2. Real transactions can be viewed as reactions to changes in demands and supplies of commodities and assets, prompted by price as well as rate-of-return expectations. They would ultimately produce a new set of prices and rates of return that would directly influence output plans. One could envision the existence of *reaction functions* operating between changes in demands and supplies, changes in transactions, and finally changes in output plans. There would therefore be a relationship between transactions on the one hand and output of goods, services, and assets on the other through those reaction functions. Such relationship could emanate from two sources.
  2. First, as commodities and assets are exchanged, additional values are created. This is because the exchange of goods and services from one individual to another would improve the allocation of resources and produce extra efficiency, which would benefit all traders in different proportions. Extra efficiency can be translated into extra output. This implies that there is a positive relationship between real transactions and output, such that  $\frac{\partial Y}{\partial T^y} \mathbf{f} 0$ .

3. Second, transactions in commodities and assets whose demand has declined (increased) relative to their supplies would be associated with decreasing (increasing) prices, which would send a signal to producers to decrease (increase) output. The greater the volume of those transactions, the stronger the intensity of such signals, and the faster resources are reallocated from decreasing- to increasing-demand commodities. Faster adjustment would produce efficiency gains in terms of better production plans and less inventories. This can also be translated into higher output, so that  $\frac{\partial Y}{\partial T^y} \geq 0$ .<sup>xii</sup>

### III. NOMINAL TRANSACTIONS

#### A. Spot Money against Monetary Assets

The act of borrowing can be viewed as a purchase of monetary assets, i.e., promises of future delivery of fixed sums of money. Here we assume that the payment of the current value of the monetary asset is done immediately.<sup>xiii</sup>

Such transactions could be termed *nominal transactions*. Their total value  $T_M^A = \sum_{k=1}^{k=1} a_k^m$  is a function of the current and expected rates of interest as well as their transactions costs.

$$T_M^A = T_M^A(r_0, r_1^*, V_M^A) \dots \dots \dots (6)$$

As the current rate of interest rises, the amount of borrowing and consequently,  $T_M^m$ , declines. When the expected future rate of interest rises, current borrowing as well as  $T_M^m$  increases, and *vice versa*.

#### B. Comparing the Transactions Costs of Credit and Cash Purchases

1. We notice that each real transaction on credit can be substituted for by two transactions. If one wants to buy a commodity on credit, he can make one real transaction for a direct CP. His transactions costs would be equal to  ${}^d v_i^y$ .<sup>xiv</sup> To the whole society, the transactions costs of that exchange is equal to  ${}^d v_i^y + {}^b v_y$ , where the first term refers to the cost of the CP contract and the second refers to the cost of acquiring the commodity by the bank from its supplier. Alternatively, he can borrow through selling a nominal asset incurring transactions costs equal to  $v_k$ . Then he uses the proceeds to make *another* real transaction to purchase the desired commodity for cash, incurring transactions costs equal to  ${}^d v_i^y$ .<sup>xv</sup>
2. We turn now to compare the transactions costs of a CP contract,  ${}^d v_i^y$ , with that of selling a bond (borrowing),  $v_k$ . The underlying elements of ascertaining the creditworthiness of the agent who is buying on credit in the first case and borrowing in the second are the same. However, we can refer to some reasons that would bring the transactions costs of credit purchase below that of borrowing.
  - In the case of purchase of real assets and other durables on credit, the commodity sold would serve as collateral subject to repossessing by the seller. In the case of lending, suitable collateral has to be identified separately. Conceivably, that would reduce the transaction costs involved in buying assets and durables on credit below the corresponding costs of borrowing.
  - We can assume that transactions costs would depend on the ability to repay a loan, which in turn would depend, among other things, on what the borrower does with it. The more such behavior is predictable, the more predictable becomes the ability to repay. In the case of CP, the debtor is certain to use the loan toward the acquisition of the commodity or asset in question. Meanwhile, in case of borrowing, there is no way of telling for certain how the loan would be spent. The ability to repay would therefore be more predictable in the case of credit finance, which would imply lower transactions costs.
  - Banks in an Islamic economic system operate on the bases of universal banking, i.e., they can take equity and provide credit finance simultaneously to the same enterprise. The practice of universal banking in a world of asymmetric information is known to reduce the cost of monitoring borrowers (Aoki 1994, Boyd; 1998 Diamond, 1998). This means that the transactions costs of credit finance provided by banks to enterprises in which they take stock would be lower with universal rather than commercial banking. This in turn would imply lower transactions costs of providing credit purchase to enterprises in which banks have stakes.

3. We can therefore conclude that in a world of Islamic banking, where universal banking is practiced, and especially in the case of financing the purchase of assets and durables, the transactions costs of CP tend to be lower than that of borrowing, namely  ${}^d v_i^y \leq v_k$ .<sup>xvi</sup>
4. So far, we have compared the transactions costs of a CP contract with that of making a loan of equal value. Adding the transactions costs of using the loan proceeds to make a cash purchase to the transactions costs of borrowing, and that of purchasing the commodity directly from the supplier, and noting (4) above, we obtain:  
 ${}^d v_i^y + {}^b v_i < (v_k + v_i^y)$ .....(7)  
 This implies that under competitive conditions, purchase on credit, CP is more efficient than borrowing followed by cash purchase of the same commodities, BAP.

**C. Nominal Transactions and Real Output**

We can look into how nominal transactions affect output from several angles.

1. At the outset, nominal transactions provide liquidity to those who sell nominal assets, which they could use to carry out real transactions type I. To the extent that this could *not* be done through credit purchases, nominal transactions could influence real output through stimulating *real transactions type I*. As we have seen above, people will find it cheaper to carry out credit purchases in one step rather than to do it in two steps: borrowing and then purchasing, especially if banks were allowed to sell on credit.
2. We can then ask why people would resort to borrowing to finance their purchases when credit purchase arrangements are available, despite the higher transactions costs of the former. One reason would be incomplete information. The calculus of transactions costs may not be as simple and straightforward to many agents. However, this would not continue in the long run, as traders would gradually gain more information through exchange. A more important source would be weaker competition in the CP markets relative to the borrowing market, thereby raising the rate of markup above the rate of interest sufficiently to counteract any savings in transactions costs.<sup>xvii</sup> In either case, there is a deadweight loss at the macroeconomic level. Such deadweight loss can be avoided by credit purchase.

**IV. COMPARING ECONOMIES WITH AND WITHOUT BORROWING**

Let us assume two economies of equal resources, one conventional and another Islamic. The aggregate output of each can be divided between consumption, investment, and transactions costs according to the following identity:

$$Y = C + I + V \text{ ..... (8)}$$

The aggregate transactions costs in a conventional economy, with no CP arrangements through banks, would be composed of the cost of borrowing (selling monetary assets), the cost of spot purchase of commodities:

$$V_1 = V_M^A + V_Y^1 \text{ ..... (9)}$$

In an economy with CP arrangements through the banking system, like the Islamic economy, aggregate transactions costs would be composed of the cost of credit purchase through banks and the cost of cash purchase of commodities by banks from suppliers:

$$V_2 = V_Y^2 + {}^d V_Y^2 \text{ ..... (10)}$$

As shown in (7) above, the total of CP and cash purchase transactions costs (by banks) in (10) would be less than the corresponding total of borrowing and cash purchase transactions costs (by individuals) in (9). This implies that

$$C^2 + I^2 + {}^d V_Y^2 < C^1 + I^1 + V_Y^1 \text{ ..... (11)}$$

We can therefore conclude under the above assumptions, that economies with CP arrangements through banks would have relatively more resources available for consumption and investment.

**V. CONCLUSION**

The main conclusion of the above analysis is that, under competitive conditions, purchase on credit costs less than borrowing to finance spot purchases. Some observed market behavior confirms that result. Suppliers of

durable goods sometimes join banks to offer financing packages to their customers, which combine borrowing and spot purchase in one deal, mimicking credit purchase arrangements.

Islamic banks usually offer credit purchase deals to their customers. In most countries conventional banks are not allowed to use similar modes of finance, while entry to the Islamic banking market is severely restricted. Some Islamic banks in such countries have the opportunity to take advantage of such monopolistic edge by charging markups, which would be higher than market rates of interest, presumably by the expected savings in transactions costs.

We can therefore conclude that a policy that lifts entry barriers facing Islamic banks and allows conventional banks to combine commerce with banking activities contributes to social welfare.

## **VI. FURTHER RESEARCH**

Relaxing some of the assumptions, especially competition in either the commodity or credit markets would conceivably produce different results. The dynamic comparison of both Islamic and conventional economies would also be interesting. If both started with the same resources, would they end up with the same size? The Islamic economy has a fragmented credit market, as credit must be associated with the purchase of some commodity. Conventional economies have integrated credit markets. The implications of this on efficiency and stability need to be further explored. Debt created through purchase on credit is unsalable against money, i.e., it is not marketable in the usual economic sense. However, under some institutional arrangements, it can be swapped against real assets. The effect of such swapping on debt liquidity as well as social welfare requires investigation. In addition, perhaps alternative institutional arrangement for debt swapping could be looked into. In any case, we can say that debt in an Islamic economy is of limited marketability.

A further complication relates to the pattern of behavior toward liquidity in economies with debt of limited marketability. In such economies, money defined broadly would contain a shorter list of quasi-monetary assets. In addition, credit purchase should have satisfied some "monetary needs" the resulting debt would satisfy some more, albeit within a limited scope. Analysis of the financial market in such economy would need to consider the full menu of financial assets to see to what extent people who wish to maintain a certain degree of liquidity can do so.

Finally, we have so far assumed that borrowing would be made exclusively for the purchase of commodities and real assets. It is possible though that people would borrow to finance the purchase of nominal assets. This would be mainly for speculative purposes. Here we need to know how such transactions would affect output on the one hand and whether it would have some bearing on economic stability.

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<sup>ii</sup> Lending money in an Islamic economy is considered to be a philanthropic act, through which someone provides temporary liquidity to one who is temporarily short of liquidity and who presumably wishes to fulfill some basic needs. In such cases, loans are forwarded interest-free. Obviously, such activity would occur only on a limited scale and within special circles, e.g., relatives, friends, and neighbors, in whose cases creditworthiness can easily be ascertained and debt collection can be done at low costs. The author has pointed out elsewhere that interest-free lending could take place on a large scale with proper institutional arrangements (Al Jarhi, 1983). Debt resulting from CP can be exchanged for cash and monetary assets only at face value. It can be swapped against real commodities and assets. This is tantamount to saying that debt has rather limited appeal. This would represent an implicit restraint on credit finance.

<sup>iii</sup> Transaction costs are the costs associated with transacting trades. They include: commissions, bid-ask spreads, impact costs associated with carrying out large transactions off the market, and administrative costs (which include the costs of confirming, documenting, reconciling, and clearing trades). For further information, see <http://www.contingencyanalysis.com>.

<sup>iv</sup> The question arises when several transactions, each entailing a different price, are made in the same commodity. The value of transactions in such a commodity would be equal to the sum of transactions values (price times quantity) at each price. For simplicity, we can assume that either the exchange time horizon allows for only one transaction in each commodity, or the value of transactions in each commodity implies already summing over each transaction at each price.

<sup>v</sup> As long as demand is not perfectly inelastic, there will be more transactions in reaction to changes in prices. The size of the demand elasticity would determine the quantities purchased but would not inhibit reaction to changes in price.

<sup>vi</sup> Suppliers can offer banks facilities to provide customers with loans to finance their purchases. However, such transactions would revert to lending then purchasing.

<sup>vii</sup> There are other advantages of combining banking and commerce (Haubrich and Santos, 1999).

<sup>viii</sup> Therefore, as will be seen later, we can venture to say that it would be more efficient in a conventional banking environment to allow banks to directly finance credit purchases.

<sup>ix</sup> The commonly known justifications for that premium include time preference and alternative uses of the sold commodities and assets in the production process. The markup on the spot price of each good and service,  $u_j^y = ({}^d p_j^y - p_j^y) / p_j^y$ , and each asset,  $u_j^a = ({}^d p_j^a - p_j^a) / p_j^a$ , is equal to the difference between the credit-purchase price and the cash price of each, divided by the latter price.

<sup>x</sup> It is also possible that markups on the credit sale of any particular commodity would be different for different buyers, depending on the risk element associated with each.

<sup>xi</sup> Obviously, this would have implications regarding the constancy of velocity and the stability of the demand function for money.

<sup>xii</sup> In a growing economy, an increase in transactions would lead to more signals to increase than to decrease output, as the decline in the demand for some commodities and assets would be more than offset by the increase in the demand for others.

<sup>xiii</sup> We can perceive of cases where some agents would borrow to buy monetary assets, i.e., exchanging monetary assets for monetary assets. We are excluding such possibilities.

<sup>xiv</sup> He would pay a markup over the spot price equal to  $u_i$ , his total cost of making the exchange, over and above the current purchase value; the total is equal to  ${}^d v_i^y + u_i \cdot p_i y_i$ .

<sup>xv</sup> His total cost, over and above the purchase value for that exchange, is equal to  $(v_k + r.a_k) + v_i^y$ .

<sup>xvi</sup> Comparing the interest payment on borrowing,  $r.a_k$ , in the case of BAP, with the markup on CP,  $u_i \cdot p_i y_i$ , would be more complicated. The rate of interest is charged for delivering present money in return for future money. Meanwhile, markups are charged for delivering commodities and assets, also in return for future money. Both interest rates and markups would vary with loan maturities as well as with the creditworthiness of borrowers. Markups may also vary with commodities and assets.

Under competition, both elements should be equivalent. However, in general, imperfections are more prevalent in credit than in commodity markets, especially as credit markets are usually more subject to regulation.

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Matters are complicated by the fact that while the rate of interest reflects the rate of time preference on money, markups would reflect the rate of time preference on commodities. Their comparison would be rather difficult.

<sup>xvii</sup> This would be particularly common in countries that restrict the establishment of Islamic banks, thereby giving monopolistic advantages to existing participants in the Islamic banking market.