Financial Intermediation: A Philosophical Approach
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Abstract

Philosophy of finance is an emerging field that tackles issues at the intersection of finance and many branches of philosophy such as ethics, political philosophy, philosophy of science, and epistemology. But in this paper emphasis was placed on the philosophy of financial intermediation with special focus on deciphering the process of financial intermediation, why financial intermediaries exist and the theories of financial intermediation. It demonstrated how the main functions of financial intermediaries such as reduction of transaction cost, information asymmetry, liquidity provision and delegated monitoring among others have aided in understanding how financial intermediation affect the economy.

Keyword: Financial Intermediation, Financial Intermediaries, Transaction Cost, Information Asymmetry, Philosophy

1. Introduction

Philosophy of finance is an emerging field that tackles issues at the intersection of finance and many branches of philosophy such as ethics, political philosophy, philosophy of science, and epistemology. But in this paper we shall place emphasis on the philosophy of financial intermediation. Economic theory has traditionally focused on the real sector of the economy and disregarded the role of financial intermediation. Effectively, in an Arrow-Debreu world, where markets are complete, information is symmetric and other frictions are not present, there is no room for financial intermediaries. But, there are numerous evidences that financial intermediation does affect the economical grows. This paper reviews the main literature about these contradictory statements (microeconomic theories of financial intermediation).

In modern theories of financial intermediation, the two most prominent explanations for the existence of intermediaries like depository institutions are the provision of liquidity and the provision of monitoring services. Diamond and Dybvig (1983) assumed that by issuing demand deposits, banks can improve on a competitive market because these deposits allow for better risk sharing among households that face idiosyncratic shocks to their consumption needs over time. The importance of financial intermediaries in this framework arises from an information asymmetry: the shock that affects a
household’s consumption needs is not publicly observable.

Diamond (1984) finds a special feature in financial intermediaries acting as delegated monitors of borrowers, on behalf of the ultimate lenders (depositors), in the presence of costly monitoring. Financial intermediaries exploit comparative advantage (comparative to individual lenders or specialized firms: rating agencies, securities analysts, or auditors) in information production because of economies of scale and scope, which reduce the cost of informational asymmetries and its extent in the economy. Diversification reduces the cost of delegating monitoring to a financial intermediary. It is on this pedestal that financial intermediation is described as the mechanism by which financial intermediaries, (such as banks) channel funds from depositors to borrowers (Sloman and Wride, 2009). This activity thrives on the financial intermediation abilities of financial institutions that allow them to lend out money at relatively high rates of interest while receiving money on deposit at relatively low rates of interest.

However, the philosophy of financial intermediation is a set of theories and ideas related to its understanding. In this regard, we must first start with the nature of financial intermediation. Second, why financial intermediaries exist? Thirdly are the theories backing this economic phenomenon.

Fig. 1 Process of Financial Intermediation
2. Why Financial Intermediaries Exist?

Financial intermediaries play an important role in the economy by matching up lenders and borrowers. Lenders direct a portion of their financial wealth to bank deposits. Borrowers seek loans to finance assorted expenditures, including investment in the mining and production activities. Banks act as intermediaries, by ways of issuing debt and equity to capitalize their intermediation activities. Relative to direct lending banks issue safe, demandable deposits, thus removing the need for savers to monitor the risk-taking behavior of the borrowers. Bank intermediation allows lenders to have timely access to their savings while also giving borrowers the option to borrow for longer period investment plans. The issue of why financial intermediaries exist is a puzzle for the “complete markets” paradigm of Arrow and Debreu. The reasons why intermediaries such as banks exist is related to the various market failures which vitiate the complete markets paradigm. In particular, there is the key issue of imperfect information which makes financial intermediaries such as banks key channels for intermediating between savers and borrowers.

3. Traditional Neoclassical Theory of Financial Intermediation

This is also known as the neoclassical model of a perfect market, i.e. the Arrow-Debreu world or the perfect market for capital. In this Arrow-Debreu world, the following standard must usually be satisfied:

- No one participants can influence prices in the market
- Borrowing/lending conditions are equal for all participant
- There are no taxes
- Absence of economics of scale
- All financial securities are homogeneous, divisible and tradable
- There are no information and transaction cost
- All market participants have ex ante and ex post immediate and full information on all factors and events relevant for the future value of the financial instruments traded.

The traditional neoclassical theory is based on the paradigm of complete and perfect markets. This is a market where present value prices of investments are well outlined, information is symmetric and other frictions are not present. Here, there is no room for financial intermediaries, i.e.
financial intermediaries have no functions because according to this theory the market is believed to be a perfect and complete one. This theory forms the basis for the present day theory of financial intermediation.

4. Modern Theory of Financial Intermediation

The current theory of financial intermediation examines basically the functions of financial intermediaries in relation to its influence on the economy. The work of Gurley and Shaw (1960) laid the foundation for the theory of financial intermediation. More importantly, the functions of financial intermediaries include:

4.1 Reduction of Information Asymmetry

In literature, financial intermediaries exist because they help to reduce information costs that arise from an information asymmetry between borrowers and lenders (Coase, 1937 and Claus and Grimes, 2003). By information asymmetry we mean a situation where the borrower generally know more about their investment than the lender as such the financial intermediaries bridges this gap as specialty in collecting information, evaluating investment projects and borrower and monitoring the borrowers performance. This market imperfection prevents borrower/lender from trading directly with each other in an optimal way. So therefore, financial intermediaries also bridges the maturity mismatch between borrowers (investors) and lenders (savers) and facilitates payments between economic agents by providing a payment settlement and clearing system (Scholtens and Wensveen, 2003).

Information asymmetry can occur “exante” or “expost”. An exante information asymmetry arises when lenders cannot differentiate between borrowers with different credit risks before providing loans which leads to an adverse selection problem. Adverse selection problems arise when an increase in interest rate leaves a more risky pool of borrowers in the market for funds. Under this condition, financial intermediaries are more likely to be loaning to high-risk borrowers due to those who are willing to pay high interest rates will on average be worse risks. Note that adverse selection problem increases the likelihood that loans will be made to a bad credit risks.

Conversely, information asymmetry problem can be expost, i.e. when the borrower but not the lender can observe actual returns after project completion. This
leads to a moral hazard problem. Moral hazard occurs when a borrower engages in activities that reduce the likelihood of a loan being repaid.

4.2 Transaction Cost

Transaction approach is related to study of the phenomenon of transaction costs in economy and their impact on organization and conducting of economic and financial activity. One of the first works investigated the connection between the functions of financial intermediation in economy and existence of transaction costs was written by G.J. Benston and C.W. Smith where the authors described the main reason of existence of financial intermediation: it was market friction in the form of information and transaction costs because of imperfection of market (Benston and Smith 1976). These authors argue that the function of financial intermediation in market economy is to satisfy financial needs of depositors and investors with relatively low for them transaction costs by means of realization of specific financial products and services which allow depositors to invest any cash for any appropriate for them period of time to get good income. Besides that intermediaries provide savers with high liquidity of their investments giving them opportunity of current consumption and borrowers—with liquid assets in demanded amounts and for necessary terms with minimum transaction costs. So, important feature of financial intermediation is its ability to satisfy financial needs of savers and investors upon more flexible terms and with less cost (or consumer's transaction costs, in comparison with direct financing).

The transaction cost does not contradict the assumption of perfect/complete markets. This approach is based on no convexities in transaction technologies. In this situation the financial intermediaries act as coalitions of individual lenders or borrowers who exploit economies of scale or scope in the transaction technology. According to Matthew and Thompson (2008), the transaction costs consist of search, verification, monitoring and enforcement cost. Under the situation of the absence of a financial intermediary (bank), the cost/return structure of the saver(S)/borrower (B) is given as:

\[
\text{Return to saver} = RS = R - TS
\]

(1)
Cost to borrower = \( RB = R + TB \)

\[(2)\]

Spread = \( RB - RS = TB + TS \)

\[(3)\]

Where \( R \) is the interest rate, \( T \) is the costs incurred. The spread provides a profit opportunity, which can be exploited by the introduction of a bank. The financial intermediaries (bank) transaction costs are denoted by \( C \). For sake of exposition, we assume that the cost is solely borne by the borrower. Then the cost / return structures become:

Return to saver = \( RS = R - TS1 \)

\[(4)\]

Cost to borrower = \( RB = R + TB1 + C \)

\[(5)\]

Spread = \( RB - RS = TB1 + TS1 + C \)

\[(6)\]

Where 1 indicates the cost after the introduction of the financial intermediaries (bank). The presence of the bank lowers the cost of the transaction if:

\[ (TB + TS) - (TB1 + TS1) > C \]

\[(7)\]

4.3 Delegated Monitoring

It is generally argued that banks reduce the degree of information imperfection and asymmetry between the ultimate suppliers and users of funds. An important constraint on direct investment by households in the financial claims of corporations is the cost of information collection. Following such an investment, household savers would need to monitor the firm’s actions in a timely and complete manner. A failure to do so would expose the investor to agency costs, which relate to the risk that the owners and/or managers of the firm will take actions that are contrary to the interests of the investor. Such agency costs arise whenever economic agents enter into contracts in a situation of incomplete information and thus costly information collection.

A common solution to the above problem is for household savers to place their funds with a financial institution, which will pool these funds and then invest directly in the financial claims of corporations. The bank will now have an incentive to collect information and monitor the firm since it has
more at risk than any individual saver. A ‘free-rider’ problem exists when investors leave it to each other to collect information and monitor firms. Banks alleviate this problem since they can profit from the information that they produce by primarily making private loans rather than by purchasing securities that are traded in the open market. Further, the average cost of collecting information is reduced. It is argued that household savers thus appoint banks as delegated monitors (i.e. as agents to act on their behalf in collecting information and investing funds). In this sense, when a bank makes a loan or investment, it acts as an agent for the depositor.

The basic idea behind the theory of delegated monitoring is that not all savers (bank depositors and other creditors) have the time, inclination or expertise to monitor institutional borrowers for default risk. They therefore engage in indirect finance (through using an intermediary) rather than direct finance. Monitoring of borrowers involves increasing returns to scale, which reinforces the view that it is most efficiently performed by specialist intermediaries. There is a resulting problem that the information provided by the monitor may not be reliable, and the monitor must have incentives to perform properly. One possibility is through reputation effects, and banks have developed substantial amounts of reputational capital as monitors of credit risk. In practice, there is also an understanding that bank regulators are in turn monitoring the banks.

Banks monitor debt (loan) contracts issued to them by the borrowers that they fund, and issue unmonitored debt (deposit) contracts. The means by which banks are able to perform as delegated monitors, and to transform loans that require costly monitoring into deposits that do not, depends crucially on their use of portfolio diversification. If the bank is sufficiently diversified across independent loans with expected repayments in excess of the face value of deposits, then the probability of the bank defaulting on its deposits approaches zero. The theory shows that diversifying the loan portfolio enables low-cost delegated monitoring.

A key element in this theory is the analysis of the costs and benefits of monitoring. The collection of private information by an intermediary results in some benefit from using this additional information in lending. The net demand for monitoring also depends
on the cost of monitoring, which in turn depends on the number of lenders who contract with a given borrower. In situations involving a single lender and a single borrower, one compares the cost of monitoring \( K \) with the resultant savings of contracting costs. When there are multiple lenders involved, either each must be able to monitor the additional information directly at a total cost of \( m \times K \), where \( m \) is the number of lenders per borrower, or the monitoring must be delegated to one party. Delegating the monitoring gives rise to a new private information problem: the party conducting the monitoring as agent now has private information. It is not even verifiable whether the monitoring has been undertaken. Delegated monitoring can thus lead to delegation costs. Delegated monitoring pays off when:

\[
K + D > \min [S, m \times K]
\]

where \( D \) is the delegation cost per borrower, \( K + D \) is the cost of monitoring via an intermediary, \( S \) is the contracting cost without monitoring and \( m \times K \) is the cost of direct monitoring. In other words, the cost of delegated monitoring must be less than the minimum of (a) costs without monitoring; and (b) total costs of direct monitoring.

In a situation where, we have \( n \) firms, \( m \) individual, \( k \) monitoring cost, \( C \), cost of reneging on debt optimality requires

\[
 nk + C_n < nmk.
\]

Then will have this
Fig. 2: A Case of Direct Finance. Each Lender monitors its Borrower Total Cost: nmk

Fig 2: Case of Intermediation Finance as Delegated Monitoring Total Cost: nk+cn
The result will hold if monitoring is efficient (K<C), investors are small (M>I) and investment is profitable. Then intermediation (delegated monitoring) dominates direct lending as soon as the number of projects n is large enough (diversification).

4.4 Liquidity Transformation
In addition to improving the flow and quality of information, banks provide financial or secondary claims to savers, which often have superior liquidity attributes compared to primary securities such as corporate equity and bonds. Banks typically offer contracts that are highly liquid and low price risk to savers on the liability side of the balance sheet while holding relatively illiquid and higher price-risk assets. They achieve this through diversifying some of their portfolio risks. Banks exploit the law of large numbers in this way, whereas savers are constrained to holding relatively undiversified portfolios. The more diversification achieved by the bank, the lower the probability that it will default on its liability obligations and the less risky, and more liquid, its claims. Financing long-term assets (e.g. loans) through short-term deposits is the source of potential fragility of banks, because they are exposed to the possibility that a high number of depositors will decide to withdraw their funds for reasons other than liquidity needs.

The liquidity transformation function of banks makes them vulnerable to runs (i.e. the possibility that many depositors simultaneously seek to redeem their claims out of concern that the bank will default if they wait). Bank runs would not be a problem if they were confined to banks that were already (pre-run) insolvent. In fact, they would act as a discipline in giving banks an incentive to avoid insolvency or the appearance of insolvency. However, bank runs clearly become problematic when depositors with imperfect information run on banks that are not (pre-run) insolvent. In an important theoretical model, Diamond and Dybvig (1983) show that a run can in itself cause a bank to default that would not otherwise have defaulted. If enough other depositors are running, it becomes each depositor’s best strategy to run them.

A bank attempting to meet demands by more than a certain proportion of its depositors will incur losses so large that its default becomes inevitable. In the above model, any event that causes depositors to
anticipate a run also makes them anticipate insolvency. It thus does in fact cause a run and so the outcome validates the anticipation. The possibility of a run makes intermediation more costly in terms of depositors needing to monitor banks more closely and banks needing to maintain more reserves. The model supports a form of deposit insurance to remove the incentive to run. In the context of bank runs, a possibly problematic feature of deposit contracts is that assets are distributed preferentially to those who are first in line to redeem their claims. In other words, funds are given to depositors on a first-come, first-served basis (also termed a Sequential Service Constraint, SSC). Some authors argue that this type of contract is run-prone and would not exist in this form under a free banking system.

4.5 Sources of Financing
The increasingly widespread availability of information on borrowers has somewhat eroded banks’ informational advantages that enable them to function as intermediaries. For example, corporations with good credit ratings are increasingly borrowing directly from markets by issuing bonds or commercial paper rather than using bank finance. This process is termed disintermediation. The theoretical literature has investigated the factors influencing different corporate borrowers’ choice between bank finance and tapping the capital markets. This suggests a clear link between a borrower’s characteristics and its choice of financing source. The firms who choose to bypass banks are argued to have an established credit reputation, low credit risk, and good prospects for future profits, thus resulting in a relatively low cost of capital involved with securities issuance. In contrast, firms who choose banks as their source of finance will typically lack a credit reputation in the market; have high credit risk and poorer prospects for future profits. Market microstructure theory indicates that if the latter type of firm were to issue securities in the capital market, they would be likely to be faced with wide bid-ask spreads on their securities, which lead to higher transaction costs for investors and ultimately a higher cost of capital for the firm. Synthesizing the above theoretical strands implies that smaller, less well known firms will use banks as a source of finance due to a relatively lower cost of capital together with the advantages from banks’ superior screening and monitoring.

4.6 Maturity Transformation
A further way of banks’ ability to reduce risk through diversification is that they are more able to bear the risk of mismatching the maturities of their typically long-term assets and short-term liabilities. Such mismatches will often result in a bank being faced with interest rate risk, but it is able to manage this risk through its superior access to markets and instruments for hedging. Maturity mismatching also provides incentives for a bank to conduct both screening prior to issuing loans and post-lending monitoring of its borrowers.

Problems with the deposit contract are also relevant here. It is rational for a depositor to withdraw funds if the deposit contract is structured in such a way that there is a greater pay-off to arriving sooner, rather than later, to redeem. This will prevail when deposits are:

- Debt claims (i.e. claims to fixed amounts regardless of the performance of the bank’s assets)
- Redeemable on demand, with a first-come, first-served rule for redemption requests (the Sequential Service Constraint, SSC)
- Subject to likely default on the last redemption claim serviced; this will be probable when either the bank is insolvent before a run begins, or when a run itself causes insolvency. It is argued that some of the problems associated with the deposit contract can be solved through securitization of assets, that is, the re-packaging of loans to create a security which is liquid, marketable and attractive to. A securitized loan can be viewed as a loan sold to investors with recourse to the bank (or a collateralized deposit). In other words, the bank sells new depositors a secured claim on the incremental loans financed with their deposits. Banks are often prevented from prioritizing ordinary deposit claims (e.g. in the USA). The process of securitization enables a bank to prioritize the claims of depositors by issuing deposit-type claims of different seniorities. Holders of a securitized asset have first claim on the asset in the case of bank insolvency. Risk-averse investors may therefore choose to invest in securitized claims, which improve risk sharing. A bank can thus choose between deposit financing and capital market financing via securitization. The bank’s choice in this matter, especially the extent to which the loan buyer has recourse to the originating bank in a securitization transaction, can signal private information to the market and thus alleviate the informational problem encountered with a standard deposit contract. It is thus argued that securitization
provides the benefits of liquidity and risk sharing, but removes the drawback of the sequential service constraint discussed above.

Recently, the work of Allen and Santomero (1997) has provided two additional functions to the list of services provided by the intermediary sector, namely risk management and access to an increasingly complex financial sector. They have argued that although transaction costs and asymmetric information have declined, intermediation has increased. New markets for financial futures and options are mainly markets for intermediaries rather than individuals or firms. Participation costs are crucial to understanding the current activities of intermediaries and in particular their focus on risk management.

5. Conclusion
One could conclude that our understanding of the functions performed by financial intermediaries in the financial system is embedded in its models and philosophy called theory of financial intermediation. These theories is built on the models of resource allocation based on perfect and complete markets which suggest that it is conflict such as transaction costs and asymmetric information that are important in understanding the philosophy of financial intermediation.

References