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International payment finality requires a supranational central-bank money: Reforming the international monetary architecture in the spirit of Keynes∗

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Abstract: Payment finality is a key issue domestically as well as across a country’s borders. In the current international monetary architecture, the existing protocols for a delivery-versus-payment operation with central-bank money do not and cannot provide for international payment finality through the links that national central banks have established between themselves on a multilateral basis. This problem concerns each country considered as a whole, but not its residents. In this connection, moving from a positive to a normative analysis, this paper points out the lack of an international settlement institution, as well as the ways and means to provide such an institution, as the result of a structural change of the current international monetary architecture. The lack of an international means of final payment implies that, to date, countries use national currencies as objects of trade, which are thereby subjected to supply and demand on the foreign-exchange market, where exchange rates may, and do, vary daily according to a currency’s excess demand (either positive or negative) with respect to another currency. This paper argues that exchange rates’ erratic volatility is the result of the current international monetary disorder, which denatures national currencies when they are traded on foreign-exchange markets.

Key words: exchange rate fluctuations; international monetary reform; payment systems

1. Introduction

This paper argues that the increasingly global imbalances observed during the first years of the third millennium are the result of international monetary disorder, namely, the use of national currencies as objects of trade rather than as means of final payment between countries defined each as the set of its own residents. The recent call by the Governor of People’s Bank of China (ZHOU Xiao-chuan, 2009) to reform the international monetary system goes in the right direction but is silent on the structure required to implement this reform successfully. The call “for creative reform of the existing international monetary system towards an international reserve currency with a stable value, rule-based issuance and manageable supply, so as to achieve the objective of safeguarding global economic and financial stability” (ZHOU Xiao-chuan, 2009, p.1) needs to be both refined and elaborated upon in order to provide a sound alternative to the current international monetary regime. It has the

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merit, however, to bring the issue of international payment reform to the attention of policy makers as well as governments around the world. It is indeed in the interest of all countries participating in foreign trade, including the United States eventually, to set up and then to make use of an orderly-working payment system between them. The United States have at least two reasons for being interested in an orderly-working international payments system. Firstly, as the 2007-2009 crisis has shown, the huge liquidity denominated in US dollars that exists as a result of the enormous US current account deficit cannot but “recycled” in the local financial sector, providing the means for the creation and then bursting of bubbles that may ravage the local economy. Secondly, if the rest of the world benefits from international monetary and financial stability, the United States can benefit from it in terms of both commercial and financial flows across the borders. It is thus a “win-win” situation to set up and then to manage a properly-working international monetary system in a cooperative mood between the United States and the other major global players in today’s world economy, vindicating Keynes’s own plan for the reform of international monetary relations that he presented at the Bretton Woods conference back in July 1944.

To date, when a key-currency country, say A, pays an amount of money A (MA) to the rest of the world, R, for its net imports of real goods, services, and/or financial assets, it just transfers to R a claim on A’s deposits into the banking system of the latter country. The international payment being stopped here today, country A does not really pay for its net imports, as it surrenders a mere promise to pay in the form of a claim to deposits in country A’s banking system, which indeed cannot leave that system. As a matter of fact, the bank deposits labeled in money A are the acknowledgement of debt of country A’s banking system. As such, they represent a promise to pay that country A, considered as a whole, delivers to R in exchange for real goods, services, and/or financial assets that residents in country A import from R. This promise does not settle country A’s debt really, and as a matter of fact, it is not a final payment for the countries or currency areas concerned as a whole, even though this international problem is not perceived by (nor is it due to) the residents of the countries involved by foreign trade. To be sure, residents finally pay their counterparties—be they located in the same country or abroad—when they dispose of any local or foreign currencies that the relevant legislation allows them to use in settlement of their transactions. Indeed, being the acknowledgment of debt of a “non-agent” (as “money provider”, the bank or the banking system is neither selling nor purchasing anything), every local or foreign currency is a means of final payment for any agent (households, firms, states) residing within any given currency area. Hence, in the above stylized example, the importer of real goods, services, and/or financial assets in country A finally pays for the imported items when she/he transfers to her or his foreign counterparty an equivalent claim on bank deposits labeled in any currencies of choice, provided, of course, that the counterparty agrees on that choice. Country R as a whole, however, is not finally paid yet, since any national currency is indeed a promise to pay by the country issuing it when the latter surrenders it to the rest of the world, and as such has no final settlement power between nations. Certainly, this national currency (say, the US dollar) may be used in a series of payments for any transactions between any two countries or currency areas. This, however, does not (and cannot) transform this currency into a means of final payment in the international economy: The international circulation of (paper) claims to a bank deposit recorded in any (key-currency) country is the circulation of a mere promise of payment

1 This led Rueff (1963) to point out that the United States’ current account deficits are “without tears” (Spahn, 2006, pp.261-263; Rossi, 2007c, pp.313-316).
2 On the acknowledgment-of-debt nature of bank money (Keynes, 1930, p.5).
3 A final payment implies that “a seller of a good, or service, or another asset, receives something of equal value from the purchaser, which leaves the seller with no further claim on the buyer” (Goodhart, 1989, p.26).
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and, as such, cannot transform the promise of payment into a final payment. A means of final payment is required for that purpose. To be sure, no country around the world would ever accept to be paid eventually with a promise to pay, in exchange for produced output (in the form of exported real goods or services) or in exchange for some claims to future production (in the form of financial assets), if this non-payment were spelt out explicitly. The next section elaborates on this point dealing with the structural as well as institutional shortcomings of the post-Bretton Woods architecture for the international monetary system. In the third section, the author put to the fore and discuss some basic principles of reform in this regard, reviving the Keynes plan presented in the early 1940s and taking stock also of a number of recent calls for an international monetary reform in the spirit of Keynes (Alessandrini & Fratianni, 2009; Costabile, 2009; Piffaretti, 2009; Ussher, 2009; ZHOU Xiao-chuan, 2009). The fourth section offers a stylized example of the working of a reformed international monetary architecture in the spirit of Keynes. The last section concludes.

2. The current architecture for cross-border settlements

At the time of writing, the financial architecture for the settlement of cross-border transactions is well developed and refined, with respect to the Bretton Woods period (1946-1973) and in particular as regards financial-market operations. As a matter of fact, there have been a number of commercial banks’ initiatives and undertakings that have led to alliances and mergers among banks and non-bank financial institutions involved in the processing of securities transactions. As part of these still ongoing developments in the cross-border payment industry, securities clearing and settlement systems, that is to say, central securities depositories (CSDs) and central counterparty clearinghouses (CCCs) are increasingly incorporated into business groups. Even if these trends in financial-market integration facilitated increase in cross-border securities trading and fuelled growth in cross-border transactions, however, the market for securities is still fragmented at the time of writing. As Kauko (2005, p.7) notes, “There are more than 20 securities settlement systems in the EU area. Most of the centers are national rather than international institutions.” The problem is literally inter-national: It concerns each country involved as a whole, rather than one or many of its residents (like banks, non-bank financial institutions, or the general government sector). As such, it concerns the international payment machinery, and in particular the international monetary architecture that is needed in order for the delivery-versus-payment protocol to operate across currency areas effectively.5

In spite of the several links and arrangements existing, at the time of writing, between commercial banks as well as between central banks across the borders, in fact, the main problem remains that between any two countries pertaining to different currency areas, payment finality has yet to be provided for any country considered

4 CSDs are institutions that hold securities, thereby enabling securities transactions to be processed by means of book entries: “Paper-form securities have become rarities, having been largely replaced by book-entries, that is to say, entries in a special securities account system” (Kauko, 2005, p.7). CCCs are entities that interpose themselves between the counterparties to contracts traded in one or more financial markets, becoming the buyer for every seller of financial assets and the seller for every buyer of securities (Russo, et al., 2004, p.4).
5 As a matter of fact, “To achieve delivery versus payment (DVP), settlement of the securities leg in the securities settlement system is conditional on settlement of the cash leg, normally in a large-value payment system” (Committee on Payment and Settlement Systems, 2006, p.48). Indeed, securities settlement systems and (large-value) payment systems are mutually dependent. Credit extensions in a payment system often depend on the provision of collateral through a securities settlement system, in a number of cases working with a central counterparty (CCP). “The CCP typically holds a cash settlement account at the settlement agent—the system’s settlement bank, often the central bank. It receives funds from settlement members delivering cash and pays out funds to those delivering securities on settlement day” (Committee on Payment and Settlement Systems, 2006, p.49).
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as a whole, that is to say, as the set of its residents. This is due to the lack, to date, of a truly international settlement institution, hence the lack of a means of final payment between nations belonging to different (that is to say, heterogeneous) monetary spaces. Let us address these issues in turn in this section.

2.1 The lack of an international settlement institution

Every economic transaction within any country’s border is finally paid through the local banking system acting as a catalyst: Every domestic payment implies the creation of the relevant number of money units through the double-entry book-keeping of one or many banks (Rossi, 2007a, pp.33-88). There is no instance in the whole world in which even a single bank discards or disregards this way of carrying out payments in the name of its clients (that reside in any given country), a rule which Keynes (1980, p.44) referred to as “the essential principle of banking” in his work on international monetary reform back in the 1940s.6 Indeed, it is well known today that Keynes advocated the generalization of “the essential principle of banking” to the payments carried out between countries, each of them defined as the set of its residents. On this crucial point, both the Bretton Woods monetary regime and the post-Bretton Woods “non-system” for international payments dismally failed to deliver.7 With the monetary architecture for international payments elicited by this “non-system”, countries fail to be credited by an international settlement institution8—as the latter does not exist yet—whenever they export real goods, services, and/or financial assets to a different monetary space. This then creates a discrepancy in foreign trade between the income earned in exports and the income spent on imports for each country defined as the set of its residents. In fact, to the extent that a country’s imports are paid for through its exports, the problem of current international payments does not appear, as any imported items are finally paid through an equivalent export of goods, services, and/or financial assets. Hence, even in the absence of an international settlement institution, if foreign trade is balanced in the above sense (that is, any trading transaction finds its final counterpart in another trading transaction), there is indeed no visible difference with an international settlement system grounded on “the essential principle of banking”, which guarantees payment finality for every economic transaction as explained above. Things change when, as recently observed in a number of countries, foreign trade gives rise to increasing imbalances in both current and capital accounts, as those recorded in the present millennium for China and the United States (see Fig. 1).

As a result of the huge and recently increasing global imbalances in foreign trade across countries and currency areas, the volumes of (official) foreign-exchange reserves have soared in the most important surplus countries, namely, China and Japan (see Fig. 2).

As noted in the above stylized example, the United States does not pay for its current account deficit finally. Its most important trading partner, that is, China, is not paid for its current account surplus eventually, unless it

6 “This principle is the necessary equality of credits and debits, of assets and liabilities” (Keynes, 1980, p.44).
7 The fact that the current international monetary regime is a “non-system” has been pointed out cogently by Williamson (1977, p.73). Rossi (2009, pp.183-191) analyzes the resulting international monetary disorder.
8 Notice the essential distinction between a settlement agent and a settlement institution: The former just “manages the settlement process (e.g. the determination of settlement positions, monitoring of the exchange of payments, etc.) for transfer systems or other arrangements that require settlement” (Committee on Payment and Settlement Systems, 2003, p.45), whilst the latter is “the institution across whose books transfers between participants take place in order to achieve settlement within a settlement system” (Committee on Payment and Settlement Systems, 2003, p.45). More precisely, “The settlement institution is in the unique position of being able to create a centralized source of settlement funds to the participants of the system. This source is called centralized because the settlement institution is the only counterparty that can influence the total amount of settlement assets that participants hold (apart from transfers of funds between systems…). If the settlement institution is a central bank, the funds are deposits in central bank money” (Committee on Payment and Settlement Systems, 2005, p.15).
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records a current account deficit in some later period for the amount corresponding to its previously recorded trade surplus vis-a-vis the United States. Even in this notional case, nevertheless, an intertemporal bilateral clearing of the US current account deficit with the same country’s trade surplus, in fact, cannot be assimilated to a final payment. It boils down to barter trade, which, if ever it existed historically, can neither be viable (today even more so than in the past, owing to both the value and volumes of cross-border trade in the present multilateral framework) nor constitute truly a payment system, that is, an orderly-working monetary architecture through which every international transaction on goods, services, and/or financial assets is finally paid and recorded in a double-entry book-keeping system of bank accounts—as this occurs “always and everywhere” domestically owing to “the essential principle of banking” referred to earlier on.

An orderly-working international payment system is urgently needed in today’s world characterized by financial liberalization and multi-currency banking across borders. To be sure, these are essential characteristics of modern open economies, be they advanced, emerging, or in transition, and their importance has been growing over the past decades in line with the emergence of highly-connected financial markets. In spite of this connection, to be sure, the international infrastructure for the settlement of all cross-border transactions on both products and financial markets is still fragmented, and one may even say cacophonous to date. This represents a severe limitation of cross-border transactions and a major source of macroeconomic disorder, because they lack eventually a structurally-sound monetary and institutional framework within which any international payments can occur without generating destabilizing effects on exchange rates, interest rates, current and capital accounts, which then
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affect economic performance negatively. The global financial and economic crisis that affected the world economy in September 2007 is largely the result of this “non-system” for international payments, whereby the centre nation (the United States) profits from the “exorbitant privilege” of purchasing foreign output without ever paying for it finally (De Grauwe, 1999, p.66).9

![Fig. 2 Foreign-exchange reserves (USD billion), 1980-2007](image)


2.2 The lack of international money emissions

As early as 1963, that is, under the dollar-standard regime decided at Bretton Woods in 1944, a handful of economists were already pointing to the main problem of that regime for international payments, which was to remain the same under the multiple-key-currency standard that replaced the dollar standard in 1973: “The supply of reserve currencies to other nations depends on payment deficits incurred by the reserve countries” (Machlup, 1963, p.256). Indeed, a reserve-currency country, such as country A in the above stylized example, does not finally pay the rest of the world, R, for the goods, services, or assets that it imports from R more than it exports to it. To put it differently, in the words of both Rueff (1963) and Triffin (1963), the lack of an international means of final payment implies that countries use national currencies as objects of trade, that is to say, as international reserve

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9 According to Gourinchas and Rey (2007, p.12), the “exorbitant privilege” has been first pointed out in 1965 by Valéry Giscard d’Estaing, who at that time was the French Minister of Finance. See Alessandrini and Fratianni (2009, pp.342-347) for analytical elaboration on this point.
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assets, whose image\(^{10}\) a net importing country transfers, as a mere duplicate, to its financial or commercial partner countries in exchange for an equivalent amount of imported real goods, services, and/or financial assets (Schmitt, 1973).

Now, in a period of growing cross-border transactions as well as exchange-rate pressure before the break-up of the Bretton Woods regime in 1973, many member countries of the International Monetary Fund (IMF) feared that the amount of international reserves was not growing enough to meet their increasing liquidity needs. They considered this as a threat to both domestic growth and international financial stability, and decided to create Special Drawing Rights (SDRs) at their Rio de Janeiro annual meeting (1967), a decision put into force in 1969. According to the official definition, SDRs are “entries in the IMF ledgers that allow deficit countries to settle part of their payments imbalances with allotments of SDRs” (Meier, 1982, p.90). In practice, an IMF member country may use SDRs in order for it to withdraw from its special drawing account at the IMF an equivalent amount of some specified convertible currency at a given exchange rate, the currency provider receiving SDRs in exchange for it. This means that, in fact, SDRs are just a conduit to obtaining a number of national currencies, like the US dollar and the pound sterling, with which any given country pays its foreign trade deficit eventually—but not finally, as we pointed out above. As such, SDRs are special credit lines, rather than money, provided multilaterally under the aegis of the IMF. More precisely, SDRs were a new form of financial assistance to deficit countries, which obtain a special right to withdraw a specified amount of some national currencies, which then they surrender in payment of the commercial or financial deficits they have with the rest of the world. “The SDR was an international reserve asset rather than money” (Endres, 2005, pp.181-182). Indeed, to date, the IMF has not been issuing SDRs—an emission which, in fact, would amount to provide a means of final payment for international trade on commercial and financial markets—but just allocated them as a percentage of an IMF member country’s quota (Cumby, 1983; Alessandrini & Fratianni, 2009, pp.351-352) for the essential difference between SDRs and Keynes’s bancor. To be sure, the decision announced by the G-20 leaders gathered in London on April 2, 2009 “to support a general SDR allocation which will inject $250 billion into the world economy and increase global liquidity”\(^{11}\) does nothing to change the nature of SDRs. In allocating a given amount of SDRs, the IMF acts merely as an international financial intermediary, and not as an international monetary institution, which would issue endogenously its own means of final payment for the settlement of international trade on commercial and financial markets (more on this later). As a matter of fact, the IMF does not (yet) monetize any of the operations that it carries out on its member countries’ demand, be they denominated in national currencies or in SDRs. Generally speaking, therefore, all international payments, to date, involve national currencies as objects of

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10 As explained by Rueff (1963, pp.323-324), any country subjects its bank deposits to a process of duplication in so far as it pays its (net) imports of real goods, services, and/or assets from the rest of the world using its local currency. In the current, post-Bretton Woods regime for international payments, as we noted above, country A transfers to R a mere claim on A’s deposits into its banking system when it pays for its (net) commercial or financial imports from R. The deposits themselves remain recorded with A’s banking system, into which they have been formed as a result of the working of the local monetary economy of production. The same bank deposits, however, are recorded, as a duplicate, in the banking system of the rest of the world, R, which in the above stylized example is a net exporter and, as such, is paid with an amount of money A that it enters, as official foreign-exchange reserves, on the assets side of its banking system’s balance sheet. As such, these claims (notably, a financial capital) circulate erratically on foreign-exchange markets around the world, subjecting exchange rates to erratic fluctuations and, more important in explaining the global crisis in September 2007, allowing the so-called “shadow banking system” (including both hedge funds and investment banks) in the United States to “recycle” this financial capital in the “originate-and-distribute” circuit that affected, among others, the local real-estate sector and the world economy later on.

trade in the current regime, which subjects their exchange rates to a structural disorder, because any traded currency can be—contrary to its own nature of numerical instrument of payment—the object of either a net supply or net demand on this market.

Indeed, and as recognized by the Governor of the People’s Bank of China in his recent call to reform the international payments machinery, the global crisis in September 2007 “calls for creative reform of the existing international monetary system towards an international reserve currency with a stable value, rule-based issuance and manageable supply, so as to achieve the objective of safeguarding global economic and financial stability” (ZHOU Xiao-chuan, 2009, p.1). As ZHOU Xiao-chuan (2009, p.2) notes, “The desirable goal of reforming the international monetary system, therefore, is to create an international reserve currency that is disconnected from individual nations and is able to remain stable in the long run, thus removing the inherent deficiencies caused by using credit-based national currencies.” This was actually the project that Keynes had in mind when preparing his own “Proposals for an International Clearing Union”, to be submitted to delegates at the Bretton Woods conference in July 1944 (Keynes, 1980). To be sure, in the 1940s as well as at the time of writing, “The creation of an international currency unit, based on the Keynesian proposal, is a bold initiative that requires extraordinary political vision and courage” (ZHOU Xiao-chuan, 2009, p.2). Yet, as argued by Machlup (1963, p.259), “bank managers and others with practical experience ought to stop regarding anything that has never been tried as impractical, and the theorists ought not to give up attempts to advance their favorite schemes just because the bankers refuse to listen.” Indeed, “The attendant complacency restrains our willingness to accept both novel proposals and the revival of older views, previously rejected for adoption in different situations of the world economy, even though such deviations from fashion might provide important ingredients for solutions to our present difficulties” (Rowley & Hamouda, 1989, p.2).

Let us explore therefore the avenue to reforming the international monetary architecture in the spirit of Keynes’s proposals, emphasizing in the next section the way and means to guarantee payment finality at the international level, for any countries involved as the set of their own residents.

3. The required structural reform of the international monetary architecture

To make sure that every international transaction is finally paid, an international system of payments working under the real-time gross-settlement (RTGS) protocol needs to be created, imitating the RTGS system that exist within any advanced economies around the world at the time of writing. More particularly, any foreign-trade transaction needs to be finally paid in national currency within each of the countries concerned, and in an international money unit (IMU) between them. The payment system to put into practice between currency areas has to make sure that international money will never spill out of the settlement system required for enabling international payments’ finality. If so, then the international monetary architecture to set up must avoid that a bank deposit labeled in any given local currency can give rise to a duplicate in some foreign banking system, whenever an importer disposes of it in payment for commercial or financial imports. In a nutshell, the (reformed) monetary

\[\text{[12]}\text{The name of the international money unit does not matter here. It may be Bancor, SDR, Supranational Bank Money (SBM) (Alessandri & Fratianni, 2009), International Money Clearing Unit (IMCU) (Davidson, 1992-1993) or any other label suits the social desires and the political aspirations of governments that participate in setting up and managing the international settlement institution to be designed properly.}\]
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The international payment machinery required to this end has therefore to work in such a way that within countries all payments are finalized in local currencies, while between currency areas all payments are finalized through the emission of international money as a vehicle of those real goods, services, or financial assets that move beyond a monetary space’s border. Let us expand on these requirements to reform the present international monetary (and financial) architecture, transforming it into a fully-fledged international settlement system that guarantees monetary homogeneity and exchange rates stability—though not fixity—between currency areas.

Among the great architects of international monetary and financial reform, Schumacher was, together with but rather independent of Keynes, one of the first proponents of an international settlement system using bank money instead of a commodity, such as gold, to settle foreign trade, which in his time mainly concerned commercial items, hence the current account balance.

In the 1940s, Schumacher was very much absorbed in ways to prevent future wars and finally concluded that in international economics, it was the countries with surpluses in their balance of trade which were the greatest threat to peace… As a possible solution to this problem he devised a new system whereby surplus countries had to spend what they earned in the long term while financing the debts of the economically weaker countries with their surpluses in the short term. (Hession, 1986, p.4)

The aim of this proposal was to create an international monetary system, in order (1) To make sure that all international transactions are finally settled; (2) To provide deficit countries with the means to finance their imbalance with respect to surplus countries, as defined by their current account balance. To this goal, Keynes made an important, but at that time discarded and since then largely ignored contribution. He notably suggested as the key point of the reform that “Internationally all transactions have to be cleared between central banks, operating on their accounts with an International Clearing Bank” (Keynes, 1980, p.34). This clearly points to two crucial characteristics of the international monetary reform, namely that the bank to set up must act as a settlement institution, that is to say, must imitate all central banks in their capacity of finally paying all interbank debts within the national payment system, and that it must be an international bank, that is to say, the settlement institution for
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Keynes observed that the logic of bank money implied the hierarchical structure of banking systems. Within countries inter-bank settlements are daily proceeded in central bank money ... Keynes thought that the same logic could be forwarded to international settlements, if a third stage was built in linking national banking systems together (Aglietta, 2004, p.52).

Now, the linking of national banking systems together can actually occur in two very different ways. The first is the avenue chosen by would-be EMU member countries with the creation of a single European currency issued throughout the Euro area by the European Central Bank through TARGET and the European System of (national) Central Banks. In fact, Keynes did not aim at establishing a supranational monetary authority that requires surrendering monetary sovereignty to an institution, such as the ECB, which would not have been accepted by the large majority of delegates at the Bretton Woods conference in 1944 (Alessandrini, 2007, p.19). The second, alternative avenue that countries might choose to link national banking systems together, indeed, has never been tried so far, although this is not a sufficient criterion for considering it as impractical, as pointed out by Machlup (1963, p.259).

This alternative avenue is the emission of a common, instead of a single, currency for a number of countries in the world (if not for all of them). As noted, it implies that every international transaction on either product or financial markets has to be paid finally, in local currency within the country or currency area concerned by it and in international money between trading countries. In this international payment system, to be headed as well as overseen by an international settlement institution, each currency is changed into itself (an “absolute exchange”) through the purely vehicular emission of an international means of final payment, whose nature is that of a numerical unit, which is needed to homogenize all national currencies participating to this system. If so, then the system for international payments becomes a system of stable, though not fixed, exchange rates replacing the present “non-system”, which elicits exchange rate volatility as pointed out above. In the proposed new architecture for international payments, all transactions on foreign-exchange markets will not affect exchange rates, in so far as country A recovers (that is to say, demands) its currency, MA, as soon as it surrenders (that is, supplies) this currency in the payment of a commercial or financial item imported from the rest of the world, R. In this case, as Guttmann (1994, p.433) points out, “Being linked to equivalent payments by and to individuals in their respective currencies, every emission of international money only transfers existing purchasing power from one country to another”. Let us expand on this crucial point with a stylized example.

4. A stylized example of the working of the reformed international monetary system

Consider the United States of America, A, and the People’s Republic of China, R (which may also represent

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13 As Alessandrini and Fratianni (2009, p.350) argue, the feasible alternative to an unfeasible autonomous supranational central bank is to create a cooperative agreement among a restricted group of key countries that find it in their interest to share responsibility to stabilize the IMS “international monetary system”. In this respect, Alessandrini and Fratianni (2009, pp.351-355) propose to start with a bilateral agreement between the United States and the Euro area, before expanding the agreement to include China. For geopolitical as well as geostrategical reasons, in this paper we suggest by contrast starting with a bilateral agreement for China and the United States, to be expanded later on to the European Union, as the latter area has roughly a balanced current account, whilst the two former countries have huge current account imbalances as seen in Fig. 1.

14 Note that the international settlement institution “could be established either as a separate institution or imbedded within an existing international organization, such as the International Monetary Fund or the Bank for International Settlements” (Alessandrini & Fratianni, 2009, p.341).
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the rest of the world, facing country \( A \)), and suppose that country \( A \) has to pay \( R \) for those commercial and financial items that its residents imported from \( R \). If the international payment between \( A \) and \( R \) has to be finalized, then country \( A \) must recover its currency, \( MA \), as soon as it surrenders it in payment of commercial and/or financial imports from \( R \). This means that country \( R \) has to be led to spend the deposit in \( MA \) as soon as country \( A \) transfers to it the corresponding property right (as we know, a deposit cannot leave the banking system where it has been formed). This requirement means that country \( R \) has to spend an amount of money \( R, MR \), when it is informed by country \( A \) that it is entitled to a deposit in \( MA \) in \( A \)'s banking system. It also means that country \( A \) has to obtain the property of a deposit in \( MR \) as soon as it surrenders the ownership of a bank deposit in \( MA \). Both these operations need a common numerical standard logically: As a matter of definition, international money is the numerical unit of measurement of national currencies making their exchange rates stable as they are taken into a set of absolute exchanges, as defined above. In this situation, as we shall explain later on, international payments guarantee indeed monetary order as well as exchange rate stability: Monetary order obtains as every purchase of real goods, services, and/or financial assets is finally paid through a sale of securities, which is not the case to date for key-currency countries such as country \( A \) in the stylized example considered so far, while exchange rates remain stable because every demand for a given local currency is, simultaneously, a supply for the same currency and for the same amount.

Indeed, in our stylized example, \( x \) units of \( MA \) are supplied (against, say, \( z \) IMU) in the payment of country \( A \)'s trade deficit, at the same time as \( x \) units of \( MA \) are demanded (against \( z \) IMU) in the payment of those securities that country \( A \) has to sell in order for it to finance its own trade deficit, thereby avoiding the deficits “without tears” pointed out above referring to Rueff (1963). Similarly, \( y \) units of \( MR \) are demanded (against \( z \) IMU) in payment of country \( R \)'s trade surplus, at the same time as \( y \) units of \( MR \) are supplied (against \( z \) IMU) in payment of those securities that country \( R \) purchases, thus obtaining (in the form of securities) the purchasing power that it earns through its net exports. As every currency is simultaneously supplied and demanded against an identical amount of international money (\( z \) IMU), foreign exchange rates can never be affected by exchanges on product and financial markets across borders. This occurs automatically by the design of the international payment machinery, and is not subject to agents’ forms of behavior.

As a result of these workings, in the international monetary space all national currencies (\( MA \) and \( MR \) in our example) are the object of an absolute exchange, whereby a sum of \( MA \) is transformed into itself through the monetary intermediation of the international settlement institution, while a sum of \( MR \) is also transformed into itself simultaneously and via the same institution. In so doing, the international settlement institution makes sure that no excess demand (be it positive or negative) for any currency can exist, as any sum of national money is both demanded and supplied by the same country instantaneously. As a matter of fact, it takes an instant—to wit, a zero duration in time—to record a payment in any bank’s ledger. If this payment is international, that is, between countries pertaining to two different currency areas, and this is expressed in a common numerical standard, namely, international money sensu stricto, then international transactions are absolute exchanges that leave every currency’s exchange rates unaffected by cross-border (commercial or financial) trade. Let us illustrate the working of this international monetary agreement in Fig. 3.

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The international settlement system represented in Fig. 3 being a system in which any economic transactions on both the product and financial markets are finally paid within and between countries, any commercial or financial item imported by a country, \( A \), must be paid for with an equivalent export of securities, which as a matter of fact are goods in their financial representation, so that any transaction finds its final counterpart in another simultaneous transaction on either the product or financial market. In country \( A \), a claim on bank deposits labeled in MA is disposed of by the national importer, who obtains real goods, services and/or financial assets from the rest of the world through an “absolute exchange”. In country \( R \), the exporter of real goods, services, and/or financial assets is finally paid in so far as she/he obtains a claim on bank deposits labeled in MR (through the domestic banking system, headed by the local central bank), which brings to her (or him) a purchasing power identically equivalent to the value she/he exported (in a commercial or financial form) to country \( A \) (see Fig. 3, where all transfers of claims on bank deposits are represented by indicating merely the amount and the money unit in which these deposits are labeled; In fact, no bank deposit can leave the banking system in which it originates, as noted above).

This transaction on securities being induced by the commercial or financial transaction carried out by residents, it might involve the state of either country (\( A \) and/or \( R \)), since there might be no private-sector resident willing to sell (or to buy) those securities that are purchased (or sold) by a non-resident (that is, a resident in a different currency area). Before addressing this issue, however we must focus on the protocol for the emission of international money in the payment of any foreign-trade transaction.

4.1 The working of international money emissions

Suppose that China and the United States decide to sign an agreement to participate in the system for international payments that propose in the spirit of Keynes. Also suppose that the United States records a foreign
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deficit worth $x \text{MA}$ or, equivalently, $z \text{IMU}$. For expositional ease, assume that the US foreign deficit corresponds to China’s surplus, as if the system we propose were composed of two countries only (at least initially).

In order to make sure that the money-purveying and the credit-purveying functions of the international settlement institution are absolutely separated, let us introduce a two-department book-keeping structure in each national central bank involved in the reform. In other words, let a country’s central bank record every international transaction in two separate monies, which means that its domestic department enters the payment in its own local currency while its external department enters it in international money, IMU. The result of the payment of the trade imbalance between China and the US is shown in Table 1, where the author assumes that $x \text{MA} = z \text{IMU} = y \text{MR}$.

While domestic payment finality occurs in national money, the final payment of every international transaction must be carried out in international money, as noted above. As far as the international payment is concerned, the international settlement institution acts as a catalyst in the sense that it has to create the number of ($z$) international money units needed to ensure that, in our stylized example, China has no further claims against the United States (see Table 1). Also notice the distinction between international money and deposits with the international settlement institution, which as a matter of fact amounts to distinguishing a flow (see Fig. 4) from the result of this flow, that is, a stock, recorded in any bank’s book-keeping (see the ledger of the international settlement institution in Table 1).

| Table 1 International money as means of final payment between countries, step 1 |
| US Federal Reserve (FED) |
| Domestic department (DD) |
| Assets | Liabilities |
| Deposit of bank A | $-x \text{MA}$ |
| Deposit of ED | $+x \text{MA}$ |

| US Federal Reserve (FED) |
| External department (ED) |
| Assets | Liabilities |
| Deposit with ISI | $-z \text{IMU}$ |
| Deposit with DD | $+z \text{IMU}$ |

| International settlement institution (ISI) |
| Assets | Liabilities |
| Deposit of the Fed (ED) | $-z \text{IMU}$ |
| Deposit of the PBC (ED) | $+z \text{IMU}$ |

| People’s Bank of China (PBC) |
| External department (ED) |
| Assets | Liabilities |
| Deposit with DD | $-z \text{IMU}$ |
| Deposit with ISI | $+z \text{IMU}$ |

| People’s Bank of China (PBC) |
| Domestic department (DD) |
| Assets | Liabilities |
| Deposit of ED | $-y \text{MR}$ |
| Deposit of bank R | $+y \text{MR}$ |

In fact, if the settlement of the international transaction were stopped at this stage, the US or country $A$ would be allowed to finally pay its net commercial or financial imports from China (or country $R$) without relinquishing
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an equivalent amount of securities (see the domestic department account of the Fed in Table 1). The US would thus live beyond its income, as it may pay for its net commercial or financial imports without exporting real goods, services, and/or securities for an equivalent amount. This risk was imbedded in Keynes’s proposals for the creation of an International Clearing Union, as a number of authors, quoted by Alessandrini (2007, p.24, fn. 42), pointed out in the 1940s—although Keynes did not ignore that risk, since he proposed a number of corrective measures (Alessandrini, 2007, pp.24-28; Rossi, 2007b, pp.101-103).

If the intervention of the international settlement institution were to stop at this stage, in fact, a deposit of $IMU$ would coexist alongside of a sum of bank deposits in money $R$ worth the same amount (see Table 1): As a result of a single payment, the number of money units existing would be twice (2$x$) the value of the exchanged items ($x$ MA), as in our example $x$ MA = $z$ IMU = $y$ MR. To make sure that the total sum of bank deposits in the whole world corresponds to the value of the underlying transaction, the international payment system has to guarantee that either one of the two sums of money worth $y$ MR each (that is, the deposit in the domestic department of the People’s Bank of China and the deposit at the international settlement institution) disappears as soon as it is formed. Only in this case will the ISI intervention, which is needed to finalize any international payments, leave the money—output relation unaltered worldwide. In the contrary case, in fact, the US would be allowed to pay for its net imports by becoming indebted to the international settlement institution, that is, without disposing of an equivalent amount of securities. This would mean that total demand for world output (which, for expositional ease, we limit here to the output of US and China) would be greater than total supply, owing to the purchasing power of the bank deposits in the accounts at the international settlement institution, which add to the purchasing power that exists in the form of bank deposits denominated in national currencies (MA and MR in the stylized example).

So, if the reform of the international payment system were to stop at this stage, it would not solve the problem of how countries have to finance their current or capital account deficit eventually. To be sure, each country must provide the real or financial backing of its net imports of real goods, services, and/or financial assets. This means that a country must finance its net commercial imports by an equivalent amount of exports of goods, services or securities. Clearly, a trade deficit has to be financed, and this may only occur through a sale of securities—provided that there is a purchaser for them, otherwise the country must cut back on its net imports of commercial and/or financial items.

Now, as the current working of domestic payment and settlement systems shows, it is possible to link together funds transfers and securities transfers at the international level to make sure that delivery of a financial asset occurs if, and only if, the corresponding final payment occurs, too (this is the DVP mechanism, by means of which both actions take place at the same time). Let us illustrate this mechanism by referring to the stylized example. When People’s Bank of China is informed that it is entitled to a bank deposit in IMU at the international settlement institution, the Chinese government should decide whether to lend the corresponding amount directly to a (private or sovereign) resident in a deficit country like the US, or to spend it for purchasing securities on the international financial market (see below). If the Chinese government lends its IMU deposit to the US voluntarily, this means that a US resident sells an equivalent amount of securities to a Chinese resident, a case illustrated in Fig. 3. If so, then the book-entry situation after this financial transaction has taken place, and has been finally settled in IMU through the international settlement institution, is depicted in Table 2.
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Fig. 4  The emission of international money between trading countries

### Table 2  International money as means of final payment between countries, step 2

<table>
<thead>
<tr>
<th></th>
<th>US Federal Reserve (FED)</th>
<th>Domestically department (DD)</th>
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</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial assets</td>
<td>–x MA</td>
<td>Deposit of ED –x MA</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>US Federal Reserve (FED)</td>
</tr>
<tr>
<td><strong>External department (ED)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposit with DD</td>
<td>–z IMU</td>
<td></td>
</tr>
<tr>
<td>Deposit with ISI</td>
<td>+z IMU</td>
<td></td>
</tr>
<tr>
<td><strong>International settlement institution (ISI)</strong></td>
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<td></td>
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<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposit of the PBC (ED)</td>
<td>–z IMU</td>
<td></td>
</tr>
<tr>
<td>Deposit of the Fed (ED)</td>
<td>+z IMU</td>
<td></td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td>People’s Bank of China (PBC)</td>
</tr>
<tr>
<td><strong>External department (ED)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deposit with ISI</td>
<td>–z IMU</td>
<td></td>
</tr>
<tr>
<td>Deposit with DD</td>
<td>+z IMU</td>
<td></td>
</tr>
<tr>
<td><strong>Domestic department (DD)</strong></td>
<td></td>
<td>People’s Bank of China (PBC)</td>
</tr>
<tr>
<td>Financial assets</td>
<td>+y MR</td>
<td>Deposit of ED +y MR</td>
</tr>
</tbody>
</table>

If we draw the balance of payments considering Table 1 and Table 2 altogether, we would have the situation shown in Table 3. the author thus notices that as a result of the international payment in international money issued by the international settlement institution no one country has a payments deficit, as all foreign trade imbalances between the US and China are finally paid by a transfer of securities in a multilateral framework, in which the paying country (the US) disposes of a bank deposit—and not merely a duplicate of as this occurs today—since its purchasing power is transferred to the receiving country (China).
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Table 3 The result of an international delivery-versus-payment transaction on securities

<table>
<thead>
<tr>
<th>US Federal Reserve (FED)</th>
<th>Domestic department (DD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Liabilities</td>
</tr>
<tr>
<td>Financial assets</td>
<td>−x MA</td>
</tr>
<tr>
<td>Deposit of bank A</td>
<td>−x MA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>People’s Bank of China (PBC)</th>
<th>Domestic department (DD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>Liabilities</td>
</tr>
<tr>
<td>Financial assets</td>
<td>+y MR</td>
</tr>
<tr>
<td>Deposit of bank R</td>
<td>+y MR</td>
</tr>
</tbody>
</table>

In this international settlement system, both national and international monies are used in a purely vehicular way, that is, as a means of payment but not as an object. To be sure, the US records a net financial outflow, as it sells financial assets in order for it to finance its final payment to China (through the international settlement institution). Of course, these securities, while they provide the means to finance the US net imports of real goods, services, and/or financial assets, are in no way the ultimate export of a net importing country: Any foreign trade deficit can indeed only be paid eventually by a net export of goods or services, compensating over time a country’s current account deficit with the same country’s trade surplus. The sale of securities, however, provides a bridge between the present and the future, that is to say, between a current account deficit and a trade surplus recorded by the country considered—on condition that, of course, there is a demand for those securities that this country aims to sell in that respect.

Indeed, if China spends the IMU bank deposit it got as a result of its trade surplus (worth \( z \) IMU) for purchasing the securities sold by the US, then this allows the latter country to find on the international financial market the funds it needs to pay for its trade deficit finally. All in all, international money disappears as the reflux principle indicates, \(^{15}\) and no inflationary pressure can therefore arise on the market for produced goods: a bank deposit of \( y \) MR exists (in China) as a result of international settlement of the US trade deficit (China’s trade surplus). As Table 3 shows, this deposit is backed by an amount of financial assets, as collateral, which are transferred from the US to China with the monetary intermediation of the international settlement institution to be set up.

Now, although the most needed purpose of the international settlement institution is that of providing participating countries with a means of final payment for the international monetary system, it would be wise to let the international settlement institution act also as a financial intermediary, lending on a long-term basis the amounts saved by surplus countries. The international settlement institution could notably lend to deficit countries, such as the US, the whole amount of IMU deposited by surplus countries which spend it neither on product markets nor on financial markets around the world.

Consider in this respect the ISI books in Table 1 and Table 2. The two double-entries in these books are the result of two distinct emissions of international money that occur in one and the same point of time. The first emission concerns the payment in international money of the trade imbalance between the US and China. By way of contrast, the second emission concerns the payment in international money of a transaction on the financial

\(^{15}\) See Lavoie (1999), for an analysis of the reflux principle in the history of monetary thinking.
market that is induced by the former emission (see above). The second emission being induced by the first, we may analyze them together (see Fig. 5).

The emission of international money represented anticlockwise in Fig. 5 is elicited by the money-purveying function of the international settlement institution with respect to foreign trade. Countries need to ask the ISI in order for their autonomous commercial and financial transactions to be settled. By contrast, the emission of international money represented clockwise in Fig. 5 results from the fact that the first (anticlockwise) emission alone would not be enough for the surplus country (China) to be paid finally: The monetary intervention of the international settlement institution would give rise to a mere promise to pay, if it was not complemented by a reverse operation whereby the newly-formed bank deposit in international money ($z_{IMU}$, see Table 1) is destroyed. This reverse operation amounts to a purchase of securities by China, which in so doing spends the IMU deposit it is entitled to at the ISI as a result of the goods-market emission of international money. On the whole, if China is led to spend on international financial markets the bank deposit in IMU it obtains from foreign trade on real goods and services, it thus contributes to ensure the orderly working of the international settlement system.

What happens, however, if China does not spend its bank deposit at the ISI to buy those securities that the US will be selling in order to finance its trade imbalance? To be sure, as Alessandrini and Fratianni (2009, p.350) note, “The participation of creditor countries in the adjustment process poses the greatest challenge”. It is particularly at this juncture that the credit-purveying function of the ISI acquires its full sense. As a matter of fact, instead of selling its securities to China, the US might sell them to the ISI, which, in so doing, advances a payment that the United States will benefit from when exporting real goods or services. If so, there might be two kinds of financial assets behind the entries in Table 2: US’s securities sold to the ISI, and the ISI’s securities sold to China. These securities may indeed be denominated in either local currencies (MA, MR, or any third-country’s currency) or international money, the key point being that the final payment of all these financial transactions between countries occurs using international money as a vehicle, that is, as a means of payment, whose load is given by those securities that are transferred from the seller to the buyer.

By selling its own securities (or debt certificates) on the international financial market, the international settlement institution would collect private as well as public capital and invest it in those countries most in need of a recovery, and in which otherwise capital would not flow (Kalecki & Schumacher, 1943, pp.30-33). As Stamp (1963, p.81) noted, “The certificates would end up with the countries which are in over-all surplus—which,
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Therefore, would have automatically lent… that surplus to the rest of the world”. Of course, both the open-market and the lending operations carried out by the international settlement institution would have to be supervised and respect the principles of sound banking as well as international best practices. The ISI lending facilities are not to be granted ad libitum, but some limit must be provided, and an interest rate must be paid by those countries obtaining the (unconditional) financial assistance of the international settlement institution. The interest rates paid by deficit countries on their borrowings, from either surplus countries or ISI, would likely depend on the extent of their current account deficit, stock of international debt, and capital account imbalances. A country recording a capital account surplus, especially one elicited by capital inflows (that is, a net sale of securities to the rest of the world), will hardly be in a position to issue new debt instruments at favorable terms. It will thus have to accept either the onus of paying higher interest rates on new debt, or that of slowing down the national economy by a hike in domestic interest rates in the hope to attract (both short term and long term) foreign investment. Alternatively, or additionally, this country might devalue, hoping thereby to boost exports and improve its trade balance in a not too distant future.

In fact, the main objection against this reform is that it might invite abuse, and that the quality of those securities that deficit countries sell to the ISI (in its acting as long-term purveyor of funds) might not match the quality of the securities that ISI sells to surplus countries, so that the quality of the ISI financial assets is likely to deteriorate over time, too. In this respect, the statutes of the ISI need to provide some limit, say, in terms of a percentage of either total foreign trade or GDP (for instance, calculated on a five-year moving average), beyond which no country is allowed to finance its trade deficit by the sale of financial assets—namely, when the country’s risk and stock of debt are already too high for this country to provide sound collateral—and it must thus cut back on its commercial imports and/or increase its exports of real goods and services (not least to pay for debt service, that is, interests on securities sold either to surplus countries or to ISI to finance its trade deficit). To be sure, under the proposed international settlement system no creditor country suffers from any credit or settlement risks: All balances at the ISI are always fully, and immediately, convertible into real goods and services sold by any members of the system, or into securities sold either by any (deficit) country or by the ISI itself acting in this connection as a financial intermediary between its member countries.

5. Conclusion

In the reformed architecture for international payments of cross-border transactions that the author puts forward in this paper, monetary and exchange-rate policy decisions can be taken according to the real needs of increasingly-open market-economy—be they advanced, emerging, developing, or in transition—rather than to counteract the erratic volatility of exchange rates as well as their unpredictable effects on current and capital accounts. In the international monetary system we propose, any participating currency will have an exchange rate that is stable (although not fixed) in terms of international money, hence also with respect to any other participating currencies, in a framework of free capital movements, without this being incompatible with flexibility in monetary and exchange-rate policy making. Beyond exchange rate stability, indeed, the reform of international payments that we propose in this paper grants another important benefit to participating countries,
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truly in the spirit of Keynes, as they increase their room for maneuver when gearing their economic policies (particularly an autonomous monetary policy) to the needs of their own domestic economies. The conflict between domestic and external goals of a country’s monetary policy will therefore be solved definitively, to the benefit of growth, employment, and macroeconomic stabilization. This opens a whole new field of research for the design and conduct of monetary policy all around the world.

References:

16 As Keynes (1980, p.234) wrote in the Preface to the April 1943 Clearing Union White Paper issued by the British Government, in reforming the international monetary architecture as he proposed, “There should be the least possible interference with internal national policies, and the plan should not wander from the international terrain”. This objective was already pointed out by Keynes in The General Theory, when he wrote that “It is the policy of an autonomous rate of interest, unimpeded by international preoccupations, … which is twice blessed in the sense that it helps ourselves and our neighbors at the same time. And it is the simultaneous pursuit of these policies by all countries together which is capable of restoring economic health and strength internationally, whether we measure it by the level of domestic employment or by the volume of international trade” (Keynes, 1936, P.349).
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(Edited by Ruby and Chris)
Inflation-inflation uncertainty nexus in Iran—Using TARCH model

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Abstract: This paper examines the relationship between inflation and inflation uncertainty in Iran economy using monthly data of Iran over the period 1990-2009. TARCH model is used to peruse the stochastic variation and asymmetries in the economic instruments. The result indicates that there is a positive relationship between inflation and inflation uncertainty. Also, the authors investigate from the Granger causality test that inflation is Granger causality of inflation uncertainty.

Key words: inflation; uncertainty; TARCH; Iran

1. Introduction

The relationship between inflation and inflation uncertainty has attracted considerable attentions by theoretical and empirical macroeconomists since the publication of Milton Friedman’s (1977) Nobel lecture. In his Nobel lecture, Friedman (1977) underscored the potential effects of inflation increasing on inflation uncertainty that it can reduce public welfare and even growth of output. Combining the link of inflation to inflation uncertainty and the link of inflation uncertainty to output, the authors have the testable hypothesis that higher inflation leads to lower output, i.e. positive slope of Phillips curve.

Davis and Kanago (2000) highlight the mixed results. It partly reflects differences in the countries studies, sample periods, frequency of the data sets and empirical methodologies, including the representation of inflation uncertainty. Many of the more recent studies have tended to use GARCH-based measures of inflation uncertainty to test the Friedman hypothesis. Recent studies of this type generally support Friedman’s hypothesis, such as: Fountas (2001), Fountas, et al (2004), Conrad and Karanasos (2005). In contrast, Hwang (2001) found there is no evidence that high inflation led to a high variance of inflation using a long series of monthly US inflation data.

The use of the autoregressive conditional heteroskedasticity (ARCH) and generalized ARCH (GARCH) approaches introduced by Engle (1982) and Bollerslev (1986), respectively, allows us to proxy uncertainty by the conditional variance of unpredictable shocks to the inflation rate.

This study focuses on the inflation-uncertainty relationship by using a long series of Iran inflation rates, during a period characterized by significant variability of the inflation rate. In this period, the authors found strong evidences in favor of the Friedman-Ball hypothesis. The rest of the paper is outlined as follows: Section 2 provides the model; Section 3 discusses the data and methodology, and section 4 discusses the empirical results. Finally, section 5 summarizes the major conclusions.
2. Literature review

Friedman (1977) suggests a positive correlation between the level of inflation and inflation uncertainty that is higher inflation leads to greater uncertainty and lower output growth. Ball (1992) formalizes Friedman’s argument in the context of an asymmetric information game between the public and the policy maker. He argues that there are two types of policymakers. In periods of low inflation, the tough type will apply contractionary monetary policy. When inflation is low both types of policymakers will try to keep it so, thus uncertainty concerning future inflation will also be low.

Okun (1971) is one of the persons who firstly study to find that countries experiencing a high inflation rate are also countries with large standard deviation of inflation.

Cukierman and Meltzer (1986) asserted that there is reverse causation, that is, higher inflation uncertainty increases the rate of inflation. They argue that increases in inflation uncertainty raise the optimal inflation rate by increasing the incentive for the policy maker to create inflation surprises in a game theoretical framework.

Johnson (2002) measures uncertainty as the S.D. of individual forecasts within a calendar year and as the average next-year forecast error, and finds a strong positive link between past inflation and current uncertainty in line with the Friedman-Ball view. Neyapti (2000) shows that, inflation significantly raised the uncertainty of wholesale price inflation in Turkey from 1982 to 1999. Evidence from Nas and Perry (2000) supports this finding, while the evidences on the effect of inflation uncertainty and the level of inflation are mixed and depend on the time period analyzed.

Holland (1995) supplied another type of argument and he claims that greater inflation uncertainty leads to lower average inflation rate rather than higher inflation rate if central bank attempts to minimize the welfare losses arising from inflation uncertainty. The authors have employed the Malaysian data because of considerable variation in its inflation rate. This makes us easier to detect a possible relationship among inflation and inflation uncertainty although Malaysian inflation rate is lower compared to other countries.

3. Data and methodology

The data that used are monthly Consumer Price Index (CPI) of Iran economy from 1990-2009. Resource of data in used is from central bank of Iran. Also, the authors applied TARCH model for capture volatility (see Fig. 1).

Autoregressive Conditional Heteroscedasticity (ARCH) type model is the predominant statistical technique employed in the analysis of time-varying volatility. In ARCH models, volatility is a deterministic function of historical returns. The original ARCH (q) formulation proposed by Engle (1982) models conditional variance has a linear function of the first \( q \) past squared innovations:

\[
 h_t = \omega + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 \tag{1}
\]

TARCH or threshold ARCH and threshold GARCH were introduced independently by Zakoian (1994) and Glosten, Jagannathan and Runkle (1993). The generalized specification for the conditional variance is given by:

\[
 \delta_t^2 = \omega + \sum_{j=1}^{q} \beta_j \sigma_{t-j}^2 + \sum_{i=1}^{p} \alpha_i \varepsilon_{t-i}^2 + \sum_{k=1}^{r} \gamma_k \varepsilon_{t-k}^2 I_{t-k} \tag{2}
\]

Where \( I_{t-k} = 1 \) if \( \varepsilon_t < 0 \) and 0 otherwise.
In this model, good news, \( \varepsilon_{t-i} > 0 \), and bad news, \( \varepsilon_{t-i} < 0 \), which have differential effects on the conditional variance; good news has an impact on \( \alpha_i \), while bad news has an impact on \( \alpha_i + \gamma_i \). If \( \gamma_i > 0 \), bad news increases volatility, and we say that there is leverage effect for the \( i \)-th order. If \( \gamma_i \neq 0 \), the news impact is asymmetric (Eviews 6, user guide II).

Fig. 1  Inflation uncertainty generated with TARCH model from 1990 (1369) to 2009 (1387)

4. Empirical results

It is necessary to check the order of integration of inflation rate series before we continue the inflation uncertainty models. Therefore, at first, we examine the stationary of inflation variable by using of Augmented Dickey-Fuller (ADF) test. The result of this test indicates that inflation variable is stationary.

In continue, the characteristics of the volatility dynamics are given. In this paper, the TARCH model is used. This model is able to accommodate the asymmetric or leverage effects. The TARCH model is appropriate for modeling most of economic and financial time series data since negative shocks and positive shocks have different effects on the conditional variance (volatility).

Table 1 reports the estimates of the estimated model. The results indicate that estimated model for both standardized residuals and standardized squared residuals are free from serial correlation and conditional heteroscedasticity. Thus, it specified that estimated TARCH model seems an adequate model.

<table>
<thead>
<tr>
<th>Variables</th>
<th>t-statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.063243</td>
<td>0.0233</td>
</tr>
<tr>
<td>Resid(-1)^2</td>
<td>0.315181</td>
<td>0.0010</td>
</tr>
<tr>
<td>Resid(-1)^2* (Resid(-1)&lt;0)</td>
<td>-0.424279</td>
<td>0.0001</td>
</tr>
<tr>
<td>GARCH(-1)</td>
<td>0.850213</td>
<td>0.0000</td>
</tr>
<tr>
<td>R-squared= 0.24</td>
<td>f-statistic=9.4(0.000)</td>
<td>D.W=1.88</td>
</tr>
</tbody>
</table>

The coefficient of \( \gamma_i \) is significant statistically at the 5% level. In this study, the negative and significant value of \( \gamma_i \) coefficient implies that positive shocks have a greater impact on inflation uncertainty rather than
negative shocks.

5. Conclusions

The positive relationship between inflation and inflation uncertainty were investigated during the period 1990-2009 in Iran. The TARCH models were used to generate a measure of inflation uncertainty. There is sufficient empirical evidence that higher inflation rate will lead to higher level of inflation uncertainty the Friedman-Ball causal link. Also, the results indicate that inflation is Granger causality of inflation uncertainty. Besides, the results indicate that the relationship between inflation and inflation uncertainty is asymmetric, and positive shocks have greater effect on inflation uncertainty rather than negative shocks.

The policy implication for Iran ought to aim at low average inflation rates in order to reduce the negative consequences of uncertainty.

References:

(Edit by Ruby and Gracie)
Whether entering WTO influences U.S. bidders’ wealth?—Some evidence from U.S. bidders’ taking over BRIC’s target firms

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Abstract: With the ever-increasing economic integration of nations, cultural homogenization and relaxation of foreign ownership regulations by many countries, international acquisition has become an important tool for firms’ globalization. Being important emerging markets, BRIC countries (Brazil, Russia, China & India) are providing international acquirers, many unique opportunities and challenges. Joining in the WTO opens access to the world markets, promotes competition in the domestic market, provides opportunities to settle trade issues and increases trust of the trade partners and investors to the emerging countries. The author tests the wealth effects (i.e. how the market react) of U.S. bidding firms on their announcements for taking over BRIC firms. In Brazil and China, significantly positive market reactions are found after their entering WTO, which reflects the sound economic development with the further opening up. Things are different in India, which are most likely caused by the economic depression during 1990s. As the only BRIC country having not joined in WTO, taking over Russian fires lead to vague market reactions in U.S..

Key words: M&A; WTO; BRIC

1. Introduction

The ever-increasing economic integration of nations, cultural homogenization, relaxation of foreign ownership regulations by many countries and the liberalization of trade and capital markets allow selling of similar products across several markets, which has resulted in the gradual evolution of increasing numbers of industries from multi-domestic to global (Elango B, 2006). Kogut (1983) argues, the primary advantage of the multinational firm, as differentiated from a national corporation, lies in the flexibility to transfer resources across borders through a globally maximizing network.

As the only global international organization dealing with the rules of trade between nations, the World Trade Organization (WTO) helps producers of goods and services, exporters and importers conduct their business by means of WTO agreements on “by lowering trade barriers and settling trade frictions”. Consumers and producers are able to enjoy secure supplies and greater choices of the finished products, components, raw materials and services that they use; Foreign markets will remain open to producers and exporters. The result is a more prosperous, peaceful and accountable economic world.¹

In recent years, the strong emergence of certain developing economies has been able to trigger economic events with strong economic implications. In this article, the author studies U.S.’s international takeovers in four

¹ The WTO in brief, The World Trade Organization.
developing countries, which have both the scale and the path to potentially challenge the economic and financial influence of the major economies: Brazil, Russia, India, and China, known as BRIC’s, an acronym popularized by Goldman Sachs in a 2003 report. These major emerging economies have been expanding rapidly in recent years, faster than the OECD area as a whole. The four largest ones, known as the BRIC’s, have seen their share in global GDP rising from 18% in 1990 to 22% in 2000, with an acceleration up to 27% by 2005 (at purchasing power parity exchange rates) (Canela, et al., 2006).

This study would focus on how the stock prices of the U.S. bidders react to their announcements of taking over BRIC countries’ target firms. By examining the excess security returns for the “acquirers”, the author is trying to find out the wealth effects of U.S. companies’ takeover behavior in BRIC countries; and sees whether these countries entering WTO elicit more positive wealth for the U.S. shareholders. The target listed companies’ abnormal returns, concerning acquisition have already been investigated extensively in developed economies (Harris & Ravenscraft, 1991; Danbolt, 1995; Frank & Sam, 2004), but the acquirers’ shareholders’ returns in the home stock markets have not been given enough attention to, especially concerning the takeovers in emerging markets, as well as the influence of fastened open-up by means of joining WTO.

A brief literature review is conducted in section 2. Data and methodology is described in section 3. Empirical results are reached in section 4. In section 5, further discussions are conducted and conclusion is reached.

2. Theoretical development

Mergers and acquisitions are an important means through which companies achieve economies of scale and scope, factor advantages, exploiting distinctive capabilities, removing inefficient management or responding to economic shocks (Rachel, Kathleen & Markus, 2004). Some other benefits, such as new market opportunities, learning, flexibility, risk reduction and cross-subsidization, as well as many other competitive benefits such as foreclosing entry by rivals, avoidance of intense competition in home markets and corporate diversification, etc, have also been argued in the literature (Elango, 2006).

Being an important tool of globalization, international acquisition was first examined by Doukas and Travlos (1988) on U.S. firms. They investigate acquiring firms’ share price changes associated with foreign-acquisition announcements, and find statistically significant positive abnormal returns for multinational companies at the acquisition announcement when acquiring target companies enter into new geographic locations. Their findings are generally consistent with the positive-multinational-network hypothesis, predicting an increase in the firm’s market value from the expansion of its existing multinational network.

Using a sample of foreign acquisitions of US firms, Cakici, Hessel and Tandon (1996) report that, the country of origin of the bidder plays a significant role in determining the gains of the transaction. They find that foreign acquirers experience positive and significant abnormal returns of nearly two percent over days (-10, +10) when they acquire targets in the United States, and their analysis of abnormal returns reveals that Japanese, British, Australian and Dutch acquirers gain significantly from purchases of U.S. firms; However, U.S. acquiring firms do

2 Goldman Sachs suggested that these four economies might soon surpass Japan and the West as the most important worldwide, venturing that by 2050. Only the US and Japan could have larger economies than any of the BRIC’s. Many investors since then build BRIC’s funds like HSBC Asset Management that, late 2004, launched the first major BRIC’s fund (with more than $3 billion of assets under management in 2006). Later, in 2005 DWS, part of Deutsche Bank Asset Management, started its own fund, followed by Schroders. Franklin Templeton and Nikko Asset Management are among the many fund companies offering to investors such funds in Europe, Asia and the US.
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not gain at all from their purchases of foreign firms over the same period.

Some previous research on international acquisitions indicated that wealth gain (or loss) by acquiring firms is influenced by the country, in which the target is located. Kiyamaz (2003) reports that U.S. firms had positive wealth gains for acquisitions in Europe, but negative wealth gains for acquisitions in Asia/Pacific, North America and Latin/Central America regions. The wealth gains are highest when acquisition take place in France and U.K.. But he didn’t offer explanations for the regional differences except for industrial affiliation are mentioned as a contributor. One would expect that the degree to which a firm can profit from such international acquisitions is influenced by the opportunities offered by the country and by the extent of potential and restrictions imposed by the host country on the acquiring firm.

Lee and Wyatt (1990) examine the announcement effects of international joint ventures for 109 firms and find negative announcement-day returns for the full sample. They hypothesize that the level of economic development of the partner’s country is an important factor, so they examine differential announcement effects for international joint ventures undertaken with partners in developed and less-developed countries. They find that the market reaction is negative and inversely related to the level of development.

The proportion of international merger and acquisition transactions to total merger activity has risen significantly throughout the last twenty years (Evenett, 2003). There is no consistent conclusion reached. With the global marketplace expanding and emerging markets offering unique opportunities, cross-border M&A activity is expanding. Additional research is needed to better understand this complex relationship.

Traditional finance theory posits that in fulfilling their responsibility to maximize shareholders’ wealth, managers should undertake only positive net present value (NPV) projects (Prather & Min, 1998). Since the value of the firm is the sum of the NPVs of the projects it has undertaken, positive NPV projects increase the value of the firm (reflected by the firm’s stock price). Thus, under the assumption that managers attempt to maximize shareholders’ wealth, the announcement of an international acquisition should elicit a positive stock price reaction for the U.S. announcing firms.

Doukas and Travlos (1988) study international acquisitions and find that shareholders of U.S. multinational companies benefit most when their firms expand internationally into less-developed countries for the first time. Lee and Wyatt (1990) find similar results for joint ventures. However, the announcement effect is negative. Less-developed countries usually possess more opportunities for further expansion than industrialized countries, and exhibit less intense competition. First-mover advantage for the firm could be created by international acquisition (Prather & Min, 1998). Therefore, it is reasonable to expect that announcements of taking over BRIC’s firms would lead to positive reactions on the U.S. stock market.

Moreover, as we have discussed, host country location (where the target is located) may play an important role in influencing the stock price (Kiyamaz, 2003). For the degree to which a firm can profit from such international acquisitions is influenced by the opportunities offered by the country and by the extent of potential and restrictions imposed by the host country on the acquiring firm.

The WTO is “rules-based” system by means of negotiated agreements.3 Joining the WTO has introduced significant market openings in the emerging market. As a result, US companies has enjoyed far greater market access than before. By cutting import tariffs, eliminating import licenses and quotas, and relaxing ownership restrictions on American businesses operating there, BRIC countries was supposed to provide more freedom and

3 Understanding the WTO, World Trade Organization.
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benefits for American companies. Moreover, according to Lee and Wyatt (1990), the level of host country
development may affect the stock market reaction. As the most important emerging markets, BRIC countries are
experiencing fast growth of living standards and relaxation of tariffs and trade restrictions after joining WTO, or
on the way of it. Therefore, we are interested to examine whether BRIC countries’ joining WTO significantly
enhance wealth creation for the U.S. bidders.

3. Data and methodology

3.1 Economic background of BRIC and data collection

Being a moderate free market and export-oriented economy, Brazil currently has a population of 190 million
and abundant natural resources. Brazil is also one of the ten largest markets in the world, “producing tons of steel,
26 million tons of cement, 3.5 million television sets, and 3 million refrigerators”.4 Despite these figures, the
economy cannot be considered developed. Although the economic changes since 1947 greatly raised the country’s
per capita income, in 1995 was still only US$4,630. Brazil and India had signed the General Agreement on Tariffs
and Trade (GATT) and became the members of WTO since its founding in January 1st, 1995.

The economy of India, when measured in USD exchange-rate terms, is the twelfth largest in the world, with a
GDP of US $1.25 trillion (2008).5 However, India’s huge population has a per capita income of $4,542 at PPP
(Perchasing power parties) and $1,089 in nominal terms (revised 2007 estimate).6 Since 1990, India has emerged
as one of the wealthiest economies in the developing world. During this period, the economy has grown constantly,
but experienced a few major setbacks, such as the nuclear tests in 1998.7

Since the adoption of open door policy in 1978, China has realized great development and became an
attractive market for foreign investors. On December 11th, 2001, the Protocol on the accession of the People’s
Republic of China from World Trade Organization was reached and has introduced significant market openings in
China and, as a result, US companies have enjoyed far greater market access than before.

Russia has bid for the membership of WTO since 1993. So far, it has completed bilateral talks with over 60
states but still needs to finalize discussions with Saudi Arabia, the United Arab Emirates and Georgia—The WTO
members that still have trade disagreements with the country.8

By cutting import tariffs, eliminating import licenses and quotas, and relaxing ownership restrictions on
American businesses operating there, BRIC countries were supposed to provide more freedom and benefits for
American companies.

To identify relevant merger and acquisition transactions, Thomson One Banker Database is used to collect all
available completed takeovers till 2007. The earliest completed transaction turns out to begin in 1984, when U.S.
Holly Oil Company fully acquired a Russian (former Soviet Union) company Amur Shipbuilding. There are
totally 1681 takeovers from U.S bidders in these four countries. The specific annual volumes for every country are
shown in Appendix Table 1. Russia has the smallest number of takeovers (154) from U.S. bidders. Brazil, India
and China have almost the same total volume of takeovers from U.S. bidders, 544, 471 and 512 respectively.

Fig. 1 plots the annual takeovers from U.S. bidders into each country. The volume of takeovers increase

4 Economic history of Brazil, from Wikipedia, the free encyclopedia.
5 India’s GDP expanded at fastest pace in 18 years, Market Watch, May 31, 2007.
7 Economy of India, from Wikipedia, the free encyclopeda.
8 Russia to hold WTO talks with UAE, Saudi Arabia on April 5-6, news from World Trade Organization, March 26, 2008.

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rapidly after Brazil, India and China entered WTO. In this paper, the wealth effects of each country are
investigated from the very first takeover to the takeovers four years after their entering WTO. And the differences
between pre-WTO wealth effects and post-WTO wealth effects are investigated. With a consideration of balancing
the number of events in two sub-periods, we will only investigate the four-year period following their entering
WTO. Since the CRSP data is only available till the end of 2005, the author collects data of Russia during that
period, and examines them as pre-WTO events. Table 1 shows the numbers of events during our investigated
sub-period with stock return data available in Center for Research in Securities Prices (CRSP) database for each
country.

Fig. 1 Annual complete takeovers from U.S. bidders
Note: The figure plots the annual number of completed international merger and acquisitions entering four BRIC countries from
U.S. Bidders in each year from 1984 to 2007.
Data source: Thomson One Banker database.

Table 1 Statistics of U.S. takeovers in examined pre-WTO and post-WTO periods in four BRIC countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Pre-WTO</th>
<th>Post-WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>58</td>
<td>173</td>
</tr>
<tr>
<td>Russia</td>
<td>124</td>
<td>64</td>
</tr>
<tr>
<td>India</td>
<td>15</td>
<td>219</td>
</tr>
<tr>
<td>China</td>
<td>134</td>
<td>87</td>
</tr>
</tbody>
</table>

Notes: This table shows the number of announcements (followed with completed deals) in the two investigated sub-periods in
each country. The pre-WTO events are collected from the very first takeover by U.S. bidder till the time of joining in WTO. The
post-WTO events are collected during the following four years after joining in WTO: Brazil and India are from 01/01/1995 to
12/31/1998; China is from 12/11/2001 to 12/11/2005; Since Russia is still not a WTO member, all the takeovers with CRSP data
available (before 12/31/2005) are examined as pre-WTO events.
Date sources: Thomson One Banker database and Center for Research in Securities Prices (CRSP) database.

In this paper, excess returns of each stock relative to the CRSP value-weighted index (CRSP/AMEX/
NASDAQ Value-weighted Market Index) are collected from CRSP database. By calculating the average
cumulative abnormal return, the market reactions to the takeover announcements from the bidding firms are
investigated. T-values are used to test the significance of these cumulative abnormal returns in different cases.
### 3.2 Variables and measures

Announcement-period cumulative abnormal returns (CARs) are computed for the 10 days around the announcements. Following Fuller, Netter and Stegemoller (2002), the author employs the modified market model,

\[ \text{Car}_i = r_i - r_m \]  

where \( r_i \) is the firm-\( i \) return and \( r_m \) is the CRSP value-weighted market return, over respective periods around the acquisition announcement. Average cumulative abnormal return for each period is then:

\[ \text{Acar} = \frac{1}{n} \sum_{i=1}^{n} \text{Car}_i \]  

After the average cumulative abnormal return (\( \text{Acar} \)) is calculated, \( t \)-test is used to test the significance of it. If the \( t \)-value is not significant, the volatility of stock price is treaded as random, e.g., the takeover announcements do not significantly influence the stock price. The \( t \)-statistic is

\[ t = \frac{\hat{\pi}}{S(n)^*} \]

for the null hypotheses Ho: \( \mu_1 - \mu_2 = 0 \).

\* represents cumulative abnormal return; \* represents average cumulative abnormal return; \( n \) is the number of observations.

### 4. Empirical results

#### 4.1 U.S.’s takeovers into Brazil

Table 2 shows the average cumulative abnormal returns, and the \( t \)-values for the total sample of 35 pre-WTO and 105 post-WTO announcements, for different event window within 5 days before to 5 days after the announcement day \((t=0)\), which is collected from the Thomson One Banker Database. As shown in Table 2, the announcements into Brazil market are, on average, associated with positive returns, but lack of conventional significance different from zero before 01/01/1995. However, the market reaction becomes significantly positive during the investigated post-WTO period. For example, the post-WTO Acar \((-4, 4)\) is 2.37\% \((t=2.78)\), significantly different from zero at 1\%. The evidence reported in Table 2 suggests that unanticipated international takeovers into Brazil create significant wealth for U.S. shareholders after Brazil entered the WTO. Table 2 reports different average cumulative abnormal return through the event window \((-5, 5)\). The 140 samples are divided into 2 groups according to the date of the announcements; Acars and \( t \)-values are calculated separately.

The average cumulative abnormal return \((-5, 7)\) through the event window \((-5, 5)\) for both groups are calculated and shown in Fig. 2. Fig. 2 presents the average stock price changes for these two periods. Before Brazil entered the World Trade Organization, U.S. bidders experience market reaction about zero around the announcements. But on average, they reap significant wealth increase around the announcements after Brazil’s joining in WTO. Overall, entering WTO both increased the number of U.S. takeovers in Brazil and created wealth for U.S. shareholders.

Brazil and the United States have been partners here in Geneva since the early days of the GATT, and Brazil
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has long been a key player in multilateral trade negotiations. Since they face with many common challenges, from combating terrorism and money laundering to fighting poverty and stimulating economic growth, enhanced economic corporation by drastically increasing international takeovers after WTO surely brought about economic consolidation and positive stock market reaction.

Table 2  Average cumulative abnormal returns (Acar), and t-values for the U.S. bidding firms’ takeovers in Brazil: 35 takeovers pre-WTO and 105 takeovers in the post-WTO four years (01/01/1995-12/31/1998)

<table>
<thead>
<tr>
<th>Event window</th>
<th>Pre-WTO (-01/01/1995) (35 Events)</th>
<th>Post-WTO (01/01/1995-12/31/1998) (105 Events)</th>
<th>Difference (%) (t-value in Parentheses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acar (%)</td>
<td>t-Value</td>
<td>Acar (%)</td>
<td>t-Value</td>
</tr>
<tr>
<td>(-1, 1)</td>
<td>0.54%</td>
<td>0.95</td>
<td>0.83%</td>
</tr>
<tr>
<td>(-2, 2)</td>
<td>0.16%</td>
<td>0.20</td>
<td>0.79%</td>
</tr>
<tr>
<td>(-3, 3)</td>
<td>0.87%</td>
<td>1.09</td>
<td>1.69%</td>
</tr>
<tr>
<td>(-4, 4)</td>
<td>1.01%</td>
<td>1.11</td>
<td>2.37%</td>
</tr>
<tr>
<td>(-5, 5)</td>
<td>0.68%</td>
<td>0.66</td>
<td>1.71%</td>
</tr>
</tbody>
</table>

Notes: *significantly different from zero at 10%; **significantly different from zero at 5%; ***significantly different from zero at 1%; T-values for testing the difference of these two groups are listed in parenthesis of the last column.

Fig. 2  Average cumulative abnormal return (%), from 5 days before the announcements to day , i.e. Acar(-5,1), for the two groups: pre-WTO and the post-WTO

Relations between the United States and Brazil could be characterized as fairly warm and friendly. The United States has increasingly regarded Brazil as a significant power, especially in its role as a stabilizing force and a skillful interlocutor in Latin America. Brazil and the United States have worked closely on a wide range of bilateral and regional issues in addition to trade matters, including counter-narcotics and terrorism, energy security, human rights protection, environmental issues and HIV/AIDS. Brazilian and U.S. officials recently signed an agreement on ethanol and technology development.

4.2 U.S.’s takeovers into China

Most of the foreign investments in China are direct investments in greenfield projects in the form of an equity joint venture, cooperative joint venture, wholly foreign-owned enterprise, or, to a limited extent,

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10 Brazilian-American relations, from Wikipedia, the free encyclopedia.
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foreign-invested joint stock company limited by shares. But with the dramatic growth of China’s economy, some Chinese businesses have emerged as attractive acquisition targets for foreign investors. Such acquisition activity appearing is likely to constitute an increasing portion of future foreign investment into China (Hsia, Li & Eich, 2006).

To test the influence of joining in WTO, i.e., whether the market reactions change after China’s entering WTO, the sample events with available CRSP data are divided into two groups, before entering WTO (46 events) and after entering WTO (87 events). The average cumulative abnormal return, *t*-values, and differences between them around the announcement days are shown in Table 3. As shown in Table 3, the announcements into Chinese market are, on average, associated with positive returns, but lack of conventionally significant difference from zero before 01/01/1995. After 12/11/2001, the average market reactions are consistently positive, although not strongly statistically significant; Before 12/11/2001, the market reactions are not consistent. There is economical significant difference of the average cumulative abnormal returns between the two groups. For example, for the event window (-3, 3), the difference is 3.773%, which is almost nine times of the Acar (-3, 3) of pre-WTO group.

Table 3  Average cumulative abnormal returns (Acar), and *t*-values for the U.S. bidding firms in China:
46 takeovers pre-WTO and 87 takeovers in the post-WTO four years (12/11/2001-12/11/2005)

<table>
<thead>
<tr>
<th>Event window</th>
<th>Pre-WTO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(-12/11/2001) (46 Events)</td>
</tr>
<tr>
<td>Acar (%)</td>
<td><em>t</em>-Value</td>
</tr>
<tr>
<td>(-1, 1)</td>
<td>-0.005</td>
</tr>
<tr>
<td>(-2, 2)</td>
<td>0.081</td>
</tr>
<tr>
<td>(-3, 3)</td>
<td>0.427</td>
</tr>
<tr>
<td>(-4, 4)</td>
<td>0.794</td>
</tr>
<tr>
<td>(-5, 5)</td>
<td>0.470</td>
</tr>
</tbody>
</table>

Notes: *Significantly bigger than zero at 10%; ‘T-values for testing the difference of these two groups are listed in parenthesis; The table reports different average cumulative abnormal returns through the event window (-5, 5); The 133 samples are divided into 2 groups according to the date of the announcement; Acars and *t*-values are calculated separately.

Fig. 3  Average cumulative abnormal return (%), from 5 days before the announcements to day 1, i.e. Acar(-5, 1), for the two groups: pre-WTO and the post-WTO

Notes: The upper curve stands for the average cumulative abnormal return for the events after China entered WTO; The lower curve stands for the average cumulative abnormal return for the events before China entered WTO.
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The average cumulative abnormal return (-5, 1) through the event window (-5, 5), for both groups are calculated and shown in Fig. 3. Fig. 3 presents the difference in average stock price changes in two sub-samples. Before China entered the World Trade Organization, the U.S. bidders tend to experience wealth reduction around the announcements; But they reap significant wealth increase around the announcement after China’s joining WTO. Therefore, entering WTO both increased the number of U.S. takeovers in China and created wealth for U.S. shareholders.

As an important emerging market with the largest potential market of 1.3 billion consumers, China is experiencing a fast growth of living standards and disposable income. Lower tariffs and trade restrictions after joining WTO will enhance the competitiveness of foreign investors. According to the World Investment Report 2006, China has become the world’s third largest foreign direct investment (FDI) recipient, and the largest FDI destination of all developing countries, receiving 72.4 billion U.S. dollars of FDI in 2005.

4.3 U.S.’s takeovers into India

Compared with Brazil and China, U.S. takeovers in India are less frequent in last century. Table 4 shows the average cumulative abnormal returns, and the t-values for the total sample of 11 pre-WTO and 36 post-WTO announcements, for different event window within 10 days before to 10 days after the announcement day (t=0), which are collected from the Thomson One Banker Database.

<table>
<thead>
<tr>
<th>Event window</th>
<th>Pre-WTO (01/01/1995) (11 Events)</th>
<th>Post-WTO (01/01/1995-12/31/1998) (36 Events)</th>
<th>Difference (%) (t-value in Parentheses)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acar (%) t-Value</td>
<td>Acar (%) t-Value</td>
<td></td>
</tr>
<tr>
<td>(-1, 1)</td>
<td>0.70% 1.51</td>
<td>-1.33% -2.93***</td>
<td>-2.10% (-3.12***</td>
</tr>
<tr>
<td>(-2, 2)</td>
<td>-0.30% -0.32</td>
<td>-0.89% -1.26</td>
<td>-0.60% (-0.53)</td>
</tr>
<tr>
<td>(-3, 3)</td>
<td>0.10% 0.11</td>
<td>-1.34% -1.39</td>
<td>-1.50% (-0.89)</td>
</tr>
<tr>
<td>(-4, 4)</td>
<td>-0.80% -0.55</td>
<td>-2.37% -1.65</td>
<td>-1.60% (-0.76)</td>
</tr>
<tr>
<td>(-5, 5)</td>
<td>0.50% 0.32</td>
<td>-1.91% -1.49</td>
<td>-2.40% (-1.23)</td>
</tr>
<tr>
<td>(-10, 10)</td>
<td>-0.70% -0.32</td>
<td>-2.90% -1.74*</td>
<td>-2.20% (-0.82)</td>
</tr>
</tbody>
</table>

Notes: *Significantly different from zero at 10%; **Significantly different from zero at 5%; ***Significantly different from zero at 1%; T-values for testing the difference of these two groups are listed in Parenthesis; The table reports different average cumulative abnormal returns through the event window (-10, 10); The 47 samples are divided into 2 groups according to the date of the announcement; Acars and t-values are calculated separately.

As shown in Table 4, the wealth effects from pre-WTO announcements into Indian market are, on average, not significantly different from zero. Surprisingly, the author finds post-WTO announcements are associated with negative returns, and the difference between these two groups tends to be significant. For example, the pre-WTO Acar (-1, 1) is 0.70% (t=1.51), whereas the post-WTO Acar (-1, 1) is -1.33%, and the difference is -2.10%, significantly different from zero at 1%. The evidence reported in Table 4 suggests that entering WTO did not instantly bring optimistic reactions on U.S. stock market towards economic alliance with India.

The average cumulative abnormal return (-10, 1) through the event window (-10, 10) for both groups are calculated and shown in Fig. 4. Fig. 4 presents the average stock price changes for these two periods. Before India entered the World Trade Organization, the U.S. bidders experienced market reaction about zero around the announcements; But on average, they experienced wealth loss around the announcements after India’s joining in WTO. This may prove that although WTO play a role in promoting the economic development in India, the
uncertain fundamental economy in 1990s has more power in influencing U.S. investors’ expectation.

Fig. 4  Average cumulative abnormal return (%), from 5 days before the announcements to day \( I \), i.e. \( \text{Acar}(-5, I) \), for the two groups in India: Pre-WTO and the post-WTO

Notes: The upper curve stands for the average cumulative abnormal return for the events before India entered WTO; The lower curve stands for the Average cumulative abnormal return for the events in the four years after India entered WTO.

In 1991, India still had a fixed exchange rate system, where the rupee was pegged to the value of a basket of currencies of major trading partners. India started having balance of payment problems since 1985, and by the end of 1990, it was in a serious economic crisis. The government was close to default. Its central bank had refused new credit and foreign exchange reserves had reduced to the point that India could barely finance three weeks’ worth of imports.\(^{11}\) Specifically, during the 1990s, at least 100,000 insolvent farmers committed suicide.\(^{12}\) The Union government treasury reported an average annual growth of merely 5% during the last quarter of 20th century. But since the very beginning of 21th century, the Indian economic activity has taken on a dynamic character, and the Union government treasury reported annual revenue of £51-£52 billion in 2005 thus registering an average annual growth of almost 22% since 2000,\(^{13}\) which are also reflected in the drastic growth of international takeovers from U.S. since 2000.

4.4 U.S.’s takeovers into Russia

Among these four BRIC countries, Russia has the fewest takeovers from U.S. bidders and has not joined in WTO. Table 5 shows the average cumulative abnormal returns, and the t-values for the total sample of 58 takeovers for different event window within 10 days before to 10 days after the announcement day (\( t=0 \)). Overall, U.S. stock market has vague reactions towards U.S. firms’ taking over Russian target firms. There is no Acar significantly different from zero.

Since the dissolution of the Soviet Union in 1991, all 15 former Soviet republics have dismantled their Soviet-style economies.\(^{14}\) Being the largest of the fifteen republics that made up the Soviet Union, Russia

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\(^{11}\) The economic history of India, from Wikipedia.

\(^{12}\) Rare unity against west’s farm subsidies, by Paranjoy Guha Thakurta, Inter Press Service, July 27, 2006.

\(^{13}\) The economic history of India, from Wikipedia.

\(^{14}\) Economy of the Soviet Union, from Wikipedia, the free encyclopedia.
accounts for over 60% of the GDP and over half of the Soviet population, and was widely accepted as the Soviet Union’s successor state in diplomatic affairs. Despite this acceptance, post-Soviet Russia lacked the military and political power of the former USSR. In October 1991, as Russia was on the verge of independence, Yeltsin announced that Russia would proceed with radical market-oriented reform along the lines of Poland’s “big bang”, also known as “shock therapy”. However, Russia’s economy sank into deep depression by the mid 1990s, was hit further by the financial crash of 1998, and then began to recover in 1999-2000. Despite of the fact that the United States and Russia share common interests on a broad range of issues, including counterterrorism and the drastic reduction of our strategic arsenals, U.S. stock market still hold skeptical attitude towards U.S. bidders’ going into Russia before 2005, due to the big uncertainties both on bilateral relationship and Russian economic development.

Table 5  Average cumulative abnormal returns (Acar), and t-values for the U.S. bidding firms’ announcements in Russia: 58 takeovers before 12/31/2005 have CRSP data available

<table>
<thead>
<tr>
<th>Event window</th>
<th>Pre-WTO (- 01/01/2005) (58 Events)</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-1, 1)</td>
<td>0.10</td>
<td>0.09</td>
</tr>
<tr>
<td>(-2, 2)</td>
<td>-0.81</td>
<td>-0.69</td>
</tr>
<tr>
<td>(-3, 3)</td>
<td>-0.55</td>
<td>-0.43</td>
</tr>
<tr>
<td>(-4, 4)</td>
<td>-0.41</td>
<td>-0.32</td>
</tr>
<tr>
<td>(-5, 5)</td>
<td>0.34</td>
<td>0.29</td>
</tr>
<tr>
<td>(-10, 10)</td>
<td>1.30</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Russian exports to U.S. were fuel oil, inorganic chemicals, aluminum, and precious stones. U.S. exports to Russia were machinery, meat (mostly poultry), electrical equipment, and high-tech products. Russia is in the process of negotiating terms of accession to the World Trade Organization (WTO). U.S. and Russia concluded a bilateral WTO accession agreement in late 2006, and negotiations continue in 2007 on meeting WTO requirements for accession. Russia reports that it has yet to conclude bilateral agreements with Saudi Arabia and Georgia. Over the past several years, Russia has increased its international profile, played an increasing role in regional issues, and been more assertive in dealing with its neighbors. The rise in energy prices has given it leverage over countries, which are dependent on Russian sources. And we expect Russia’s entering WTO would be both a reason and a result of Russia’s further economic development.

5. Discussion and conclusion

International M&A is a complicated problem, tangled with various drivers and associated with various risks. In this article, the research is only limited to U.S. bidding firms taking over BRIC countries’ target firms. As an important strategy for economic multilateralism, entering WTO is supposed to bring big impact on the member countries. The wealth effects of U.S. bidders’ announcements on taking over BRIC countries’ target firms are investigated, both before and after their joining in WTO. Being close to U.S., Brazil has been a warm friend, especially during the Cardoso government during 1995-2003 and the Clinton administration was very enthusiastic, regarding the passage of constitutional amendments that opened the Brazilian economy to increasing international participation. Joining in WTO is surely

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15 History of post-Soviet Russia, from Wikipedia, the free encyclopedia.
16 Background note: Russia, Bureau of European and Eurasian Affairs, U.S. Department of State, September 2007.
Whether entering WTO influences U.S. bidders’ wealth? —Some evidence from U.S. bidders’
taking over BRIC’s target firms

an effective catalyst in promoting the economic development of Brazil, which is reflected by the more significantly positive reactions in U.S. stock market after 1995.

As an important emerging market with the largest potential market of 1.3 billion consumers, China is undergoing drastically rapid development, attracting ambitious investors from all over the world. Both the volume and the market reactions of U.S. takeovers increased significantly, and firms’ pockets generally benefited from their international adventure into China, especially after 2001, when China joined the World Trade Organization and enhanced its steps of opening up.

Looking across these four countries, the author found that entering WTO tends to have different impacts on different countries. India did not experience drastic development immediately after joining in WTO as we expect, whereas the wealth effects for U.S. bidders became significantly negative. In this case, the fundamental economy condition did not improve instantly with the catalyst of WTO, however, was more subject to the great influence of Asia financial crises. Moreover, the author found that before 2005, U.S. stock market had a skeptical attitude towards the prospect of Russian economy. Sophisticated political relationship between U.S. and Russia, as well as the relatively slow steps of opening up, brought about the uncertain attitude from U.S. investors.

There are still many questions left for future research. For example, WTO is not the only factor eliciting the market reactions. Disentangling WTO with other factors, such as the characteristics of the deal, still needs a lot of efforts. Moreover, only short term reactions from U.S. stock market are investigated in this article, several years abnormal returns after the announcement may suggest whether long-term wealth are created for bidding firms. While all takeovers involve risks, there are unique risks associated with different international takeovers. It would be meaningful to figure out what these risks are and how these risks are reflected by stock prices in future research.

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Whether entering WTO influences U.S. bidders’ wealth? —Some evidence from U.S. bidders’ taking over BRIC’s target firms


Thakurta P. G.. (2006, July 27th). Rare unity against west’s farm subsidies. *Inter Press Service*.


(Edited by Ruby and Gracie)

Appendix:

Table 1  Annual complete takeovers from U.S. bidders into BRIC countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Brail</th>
<th>Russia</th>
<th>India</th>
<th>China</th>
<th>BRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984</td>
<td>1</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1985</td>
<td>2</td>
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<tr>
<td>1986</td>
<td>2</td>
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<td>2</td>
</tr>
<tr>
<td>1987</td>
<td>6</td>
<td>1</td>
<td>7</td>
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</tr>
<tr>
<td>1990</td>
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<td>9</td>
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<td>27</td>
<td>16</td>
<td>58</td>
<td>73</td>
<td>174</td>
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<td>2007</td>
<td>37</td>
<td>14</td>
<td>71</td>
<td>86</td>
<td>208</td>
</tr>
<tr>
<td>Total</td>
<td>544</td>
<td>154</td>
<td>471</td>
<td>512</td>
<td>1681</td>
</tr>
</tbody>
</table>

Note: The table shows the annual numbers of U.S. completed takeovers of four BRIC countries in each year from 1984 to 2007.
Analysis of innovative water-saving irrigation systems in rural areas
—Taking Taocheng in Hebei province as an example

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Abstract: Since China’s rural areas is short of groundwater resources, one focus in water management study is water waste in irrigation in rural areas. The root causes of water waste are inefficient management and market-based instruments which are due to the “common pool resources” property of water resources, and this property ultimately results in “public tragedy”. Farmers’ awareness of water saving and water resources’s use efficiency can be promoted through the innovation of systems, the introduction of collective action, the establishment of autonomous organizations of water users, the implement of participatory management of water users, and the price adjustment by economic means. Saving water through system arrangement enriches the content of water resources management in theory and provides system sustainment for water-saving in engineering and agriculture in practice.

Key words: farmland irrigation; water resources; water-saving; system innovation

1. Introduction

The shortage of water resources is a very serious problem in China in which per capita water resource is 25% less than the world average level. 550 billion tons water is supplied every year in China, in which irrigation water accounted for 65% or so. In the winter wheat dryland planting areas in the north, annual precipitation is only 400mm or so. People need to exploit a large number of deep groundwater to irrigate farmland, there have been a number of “Funnel Zone” since 1890s when the static underground water level declined at an average rate of 2m every year. The point of the farmland irrigation in the past has always been inclined to “broadening water resources” which has resulted the “reducing water use” management system of water resources seriously lagging behind. At present, the water-saving farmland is half less than the effective irrigation areas, and the farmland using micro-irrigating and other water-saving irrigation methods accounts for only 2.6% of the total irrigation areas. There are 30 billion m³ water shortages in agriculture every year. Meanwhile, because of long-term lack of maintaining of irrigation engineering, laggard management system and irrigating way, the utilization coefficient of irrigation water is only 0.4 (ZHANG Bing & WANG Yi-qi, 2004). Both water shortage and water waste have restricted the development of agriculture. From the perspective of human economic activities, the key of the problem-solving is to improve
water-using efficiency by forming water-saving incentive mechanism and waste-avoiding constraint mechanism through appropriate institutional arrangements which would guide people to improve water utilization efficiency.

2. Theoretical basis for water resources management

2.1 The “common pool resources” property of groundwater in rural areas

All of the resources have ever been public resources which are available and are free of charge. With the increase of the ratio of users and resources, resources have become more and more rare, and then the original public resources are divided into private resources, public resources and the “common pool resources” according to their respective natural and economic attributes (CAI Fang, 1993). The common pool resources are those resources, which are hardly exclusive and are used respectively by individuals (Elinor Ostrom, 2000). It has two characteristics: Firstly, it is non-exclusive in usage; Secondly, it can only provide a limited return. So this kind of resource is called “common pool resources”.

2.2 System innovation and water resources management

The content of system is the sum of basic norms of various relationships forming in the constraint, incentives as well as coordination of human behavior in the resources development and utilization. System change is a process of system substitution, conversion and transaction, in which a more efficient system replaces the primary system. Institution change is a conversion from one system equilibrium state to another system equilibrium state according to game theory. Water resources management is improving the behavior of water users and water use technologies to achieve efficient use of water resources and get maximum products and services, while using established production factors through system designing.

2.3 The role of price mechanism

Price is the information transmission device of market mechanism, and is an important tool to guide the allocation of resources. Price competition will configure the best size of each industry to achieve maximum efficiency of water resources allocation by substitution of the resources of low marginal revenue with the resources of high marginal returns. From the point of water rights view, a moderate increase in water prices may increase water use efficiency. Because the increase of water price adds the opportunity cost of water conversion, and the water users may pay more attention to water usage or substitute water resources with resources of low marginal revenue, so as to achieve the purpose of reducing water consumption.

As shown in Fig. 1, $D$ curve represents the farmers’ water demand; $I$ curve represents the cost of water-saving. In general, the marginal cost of water saving is less than marginal products of water, or else the water user would...
rather endure water shortage than increase water-saving cost, so his water-saving cost curve is smoother than his water demand curve. Clearly, when the agricultural water is for free, the maximum water demand of farmers is $w_2$, when the maximum benefit of water users is $oaw_2$. Supposing the price of water rises to $p_1$, water user will compare the cost and benefits of water-saving at this price level. When there is no water-saving, water user’s revenue is $adp_1$ and the cost is $op_1dw_1$, and when there is water-saving, water user needs invest $w_3dw_1$ to it and $w_3w_1$ water will be saved ($aw_1-36ow_3=w_3w_1$). It will bring $w_3edw_1$ revenue, if the water saved is putted into production and the net benefit will increase by $ecd$ deducting $w_3cdw_1$ cost. Evidently $ecd$ is larger than $w_3dw_1$ according to the previous assumptions, so water user will prefer water-saving at this price (ZHOU Yu-xi & ZHOU Xia, 2006).

3. System innovation of irrigation water-saving in rural areas at Taocheng district

Hengshui city

Taocheng district is located in Hengshui city whose average annual precipitation is 522mm. It is a typical agricultural dryland district in north and has 51.9 million mu cultivation land and 430,000 persons. In this area, farmland has been irrigated mainly by deep groundwater for many years, which has caused subsidence funnel zone at Jizhou, Zaoqiang and Hengshui, and the central maximum depth is up to -98 meters. The scarcity of water resources has posed a serious threat to its sustainable development, and Taocheng district began to carry out water-saving system exploration in wheat irrigation zone from June 2004. Through the establishment of new system with the building of farmer water users associations as the main content, and new mechanism with the water price reform as the main content, the water use efficiency and the water users’ water-saving awareness have both been advanced significantly. The basic elements of its system innovation can be summarized as “two kinds of water pricing, raising price and subsidy price, regulating water price, award water-saving and punish water-wasting, policy subsidy and public participation”.

3.1 Establishing farmer water users association

Introducing a regional cooperative economic organization—Farmer Irrigation Water Users Association besides government and market regulation in water resources management to implement water users “participatory” management, this system is considerably coincident to the eight principles of “multi-center management structure” proposed by Ostrom. The farmer water users associations carry out contract management which helps to lower transaction costs, overcome “free-rider” and avoid the temptation of opportunism to achieve persistent common interests of farmers toeing the mark (JIANG Dong-hui, HU Ji-lian & WU Hua-guang, 2007). By establishing several of rules and regulations, the association has strengthened the farmers’ concept of law and democratic participation which reflect the democratic decision-making and democratic management and result in “property rights efficiency in acquaintance society”, which is in line with vast countryside’s conditions in China. Therefore, the formation of farmer water users association has an important practical significance to the improvement of the use efficiency of irrigation water. Meanwhile, the promotion and application of the association has highly flexibility and operability (Garrett Hardin, 1968).

In September 2004, Taocheng district choose Gaocun as an experiment unit, where farmer water users association is organized by twenty users’ representatives, who are elected by all of the water users of Gaocun. As a system constitutor, the association constitutes “Water Resources Allocation Program of Taocheng District”, “Water Property Permits Management Measures of Taocheng District”, “The Organization and Management of Taocheng District” and other association rules, motor-pumps well management measures, financial management
measures and other systems. Local government gave the village 420,000 m$^3$ water quota at the first year, and the association distributed it to each family according to every household’ population, arable land, livestock, etc. by giving each family a “Water Use Permit”. So the farmers should use water by permits which would induce farmers’ awareness of water rights.

This is a classic collective action program of institutional arrangement. Because the groundwater of farmland irrigation is a typical “common pool resources”, there are inevitably “free-rider” and “crowding effect” in its use which will lead to “tragedy of public resources”. Therefore, the collective action system should enable individuals to act in accordance with their common interests even including those rational and self-interest individuals by mandatory ways or other special means (Mansyr Olson, 1995). The key to collective action is to adjust the income or reward structure of institutional arrangements so to adjust the structure of motives and purposes of action in society.

3.2 The “two kinds of water price” model

According to “two kinds of water price”, water resources management departments draw a quantity boundary for water use in the light of relevant laws and regulations, within which the water is charged at normal price, or else the excess part will be charged at “high water price”. So the “two kinds of water price” also can be called “progressive water price” which is more appropriate. Using this innovation as a reference, Gaocun in Taocheng district defines this “two kinds of water price” as “total control and quota management” model. Total control is to give a certain quantity of water to each association based on traditional practices, national policies, local development planning and other factors, and the excess part is charged at 120% of primary price. Quota management refers to floating quota management; the quota is determined by the average amount of single round of irrigation water every acre. So “progressive water price” is also defined as “staged water pricing”. The price of farmland irrigation water is 0.70 RMB/kWh which is set up by the association which also gives price standards for domestic water and aquaculture water. According to association’s reward and punishment system, 5% upper and lower to the fixed quota is charged at the primary price; Within 10 m$^3$ upper to the fixed quota, the excess part is surcharged by 0.03 yuan/m$^3$; At the range of 10-20 m$^3$ upper to the fixed quota, the part excess to 10 m$^3$ upper to the fixed quota is surcharged by 0.07 yuan/m$^3$; At the range beyond 20 m$^3$, the part excess to 20 m$^3$ upper to the fixed quota is surcharged by 0.1 yuan/m$^3$. The rewarding is similar in water-saving. The changes of prices and quantities at floating quota management at Gaocun are shown in Fig. 2.

![Fig. 2  The change curve of water prices and quantities at floating quota management](image)

Notes: $C$ is the Total payments; $Q$ is the quantity of water; $P$ is the price
3.3 The “raising price and subsidy price” model

Water waste at dryland and rainless areas is related to the current low price of agricultural irrigation water at great extent. Farmers can be induced consciously involved in water saving and waste reducing by raising water price. The “raising price and subsidy price” model is such a system which subsidizes water users by raising water prices. According to this system, the water users are charged at a high price and subsidized through a certain mechanism. Water prices change positively related to the water use quantities, and the principles of this model are: The overall water price does not increase or decreased slightly at the subsidy mechanism without increasing the burden of water users, and the excess parts are charged at high price. Since August 2005, Guozhuang village in Taocheng District began to practice this model. In the practice, the “high water price” is composed of: (1) Electricity price of agricultural irrigation is raised from 0.7 yuan/degree to 1.0 yuan/degree. (2) Thereinto, 0.3 yuan is putted into the “water-saving adjustment funds”. (3) Through local financial and “state construction projects, water-saving society”, 0.1 yuan/kWh subsidy and fund is distributed averagely to member households through local finance and “water-saving country building project”, and the actual price of water at “raising price and subsidy price” model can be expressed as the follow formula:

\[ P = P_1 - (P_1 - P_0) \cdot \frac{Q}{q} \]

\( P \)—A household’s practical water price; \( P_1 \)—Water price after being raised; \( P_0 \)—Water price before being raised; \( Q \)—Per capita water consumption of the region; \( q \)—Per capita water consumption of water use household.

Water-saving curve of “raising price and subsidy price” model is shown in Fig. 3.

Fig. 3  Incentive curve of water-saving at “raising price and subsidy price” model

3.4 Evolution of price “raising” and “subsidy” system

“Raising price and subsidy price” is a process of restriction and stimulation to water users’ conducts about using pricing mechanism. In “raising price and subsidy price” model, water prices before and after being raised are fixed and the regional per capita water consumption is relatively fixed, and actual water price is only related to average water consumption. The more the consumption is, the higher the actual price is. The “raising price and subsidy price” model has greater effect than “staged water pricing” model in water saving, and raising water price have a positive impact on raising farmers’ water-saving awareness and water using efficiency. However, due to the low water price, farmers’ poor awareness of water-saving, too many links in government management, low management efficiency and other factors, the waste and management cost of water resources is high. Thus, water resources management can
not simply rely on economic instruments, that is implementing solely “raising price and subsidy price” model will increase the water price by adding the opportunity costs in the government management, which will leading to the imbalance of income and reward structure in “collective action”, which will fail ultimately. So only the combination of “raising price and subsidy price” model and “staged water pricings” model can make the institution arrangement consistent with farmers’ water-saving enthusiasm, which will bring in the persistence of institution.

4. Inspiration from system innovation of irrigation water-saving at Taocheng district Hengshui city

4.1 The induced institution change is in line with the practice of irrigation water-saving in rural areas

The shortage and waste of water resources has become a key factor restricting the development of agricultural which settlement is rely on system innovation ultimately. After solving water-saving problem in engineering and agriculture, the next step is to induce farmer water users’ active participation by system innovation. To form an effective combination of a series of systems by changing from “broadening water resources” to “reducing water use”, price incentives to price subsidies and “dilemma of collective action” to “water users participatory management” are Pareto improvement process.

4.2 The “follow effects” of system innovation

There will be “follow effects” when an innovation is successfully putted into practice in a region. The system innovation of irrigation water-saving in rural areas is in line with the rule of technique diffusion in macro. From “staged water pricing” model to “raising price and subsidy price” model, Taocheng district successfully achieves conservation of water resources and improvement of water use efficiency by system innovation, which is suitable for dry areas in northern China.

4.3 System innovation has advantages in collective action

Farmer water users associations lead to cooperation of farmer communities as a system innovation of water-saving. Water resource management achieved the common interests of the collectivity through system design which forms constraint and incentive mechanism to water users and facilitates individual action to be collective action (William J. Cosgrove & Frank R. Rijsberman, 2000). System innovation at Taocheng district promotes self-management of farmer water users in a region, reduces system implementation costs, encourages the farmers’ cooperation enthusiasm in water-saving and advances the coordination among governments, markets and farmer collective organizations in water resources management.

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Evaluating the H-1B visa program: Theoretical issues*

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Abstract: The H-1B visa program is popular and controversial at the same time. It is supposed to serve U.S. interests by helping bring some of the most talented scientists and engineers (S&E) to this country. There is considerable dispute, however, whether the program is successful in this regard, or whether employers misuse it to undercut the salaries of citizens and green card holders who apply for the same positions. This paper sorts out some of the theoretical issues that complicate empirical analyses and which, if ignored, could produce misleading results.

Key words: immigration; visa policy; highly skilled migrants; migration theory

1. Introduction

The H-1B visa program is popular and controversial at the same time. It is supposed to serve U.S. interests by helping attract highly talented foreign scientists and engineers (S&E) when no qualified U.S. applicants are available (Espenshade, 2001). There is considerable dispute, however, whether the program is successful in this regard, or whether employers misuse it to undercut the salaries of citizens and green card holders who apply for the same positions. For a critical assessment see Dobbs (2007a), Dobbs (2007b), Martin (2008) and Matloff (2008). Kirkegaard (2005) and Lowell (2001) also find some evidence of abuse. By contrast, Kerr and Lincoln (2008) find a positive relationship between patents issued to Chinese and Indian H-1B immigrants and the number of such visas issued. They find little impact on patents issued to natives. Alarcón (1999) reaches a positive conclusion with respect to H-1B immigrants’ skills and qualifications relative to those of natives among scientists and engineers in Silicon Valley.

At first glance, some evidences often presented to argue that the program is being abused seem persuasive. This is particularly true in the case of salaries, which are often lower for H-1B visa holders than for U.S. citizens and green card holders. This could be the evidence that the program is used by employer to undercut prevailing salaries, rather than because of a lack of native talent. Such a comparison is appropriate as long as labor markets operate free of constraints, but this does not apply to the H-1B program, which is subject to several constraints. First, the program is subject to annual quota restrictions. Thus, foreign nationals compete for jobs against permanent residents and other H-1B candidates, but they also compete for the limited number of visas against other H-1B applicants. Second, the applicant must find an employer before a visa application can be submitted.

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The employer must be willing to sponsor the visa applicant, that is, apply for the H-1B visa. Not all employers are willing or have the experience to start this process. Third, the visa is limited to a maximum of six years. Fourth, spouses and other dependents are not allowed to work. Fifth, if employment is terminated before the six year period, the individual must leave the country, unless another H-1B employer is found and approved by the Immigration and Naturalization Service.

The H-1B visa is a so called “dual intent” visa that allows its holder to apply for permanent residency (Green Card). This makes the H-1B visa a stepping stone to a career in the United States. Therefore, the benefits to foreign applicants may extend well beyond those of the H-1B jobs. In fact, the benefits of gaining permanent residency may be so great that foreign nationals may willingly accept lower salaries to secure an offer from an H-1B sponsor. The salary difference they are willing to forgo can then be regarded as an investment into the (uncertain) prospect of permanent residency. It is likely that this salary difference is not the same for all H-1B visa applicants. We expect to see a negative relationship between a candidate’s earning potential in the home country versus that in the United States.

Given the previous discussion, it is possible that the motivations of foreign and U.S. applicants differ, maybe significantly. Specifically, whereas U.S. citizens compare job offers against each other along more or less identical criteria (salary, advancement opportunities, nature of work), foreign applicants compare two potentially very different career paths and also different futures for their families. Therefore, foreign and native applicants face different labor market conditions and incentives. The purpose of this article is to sort out the most important theoretical issues that complicate empirical analyses and which, if ignored, could produce misleading results.

For information about the growth of the H-1B program since its inception in the 1950s, see Lowell (2000). For additional historical information, see Usdansky and Espenshade (2000).

2. Theoretical background

Starting in the 1990s, the majority of foreign scientists and engineers who applied for permanent residency in the United States already held a temporary visa (Schaeffer, 2005). Schaeffer (2005) sees studies or post-doctoral work as a stepping stone toward visa conversion (from student visa to H-1B or from H-1B to Green Card) and develops a model of optimal human capital investment based on such a strategy. His dynamic model assumes a lifetime, which is subdivided into three periods: (1) Time spent in the home country acquiring formal education. Emigration is planned to occur at the end of the first period. (2) After emigration the individual spends time in the destination country, adding to education. (3) The final period is spent on working. Under “normal assumptions” at least one of the two education periods will be positive and the work period will be positive as well.

Schaeffer (2005) distinguishes human capital between pre-migration and post-migration. If it is optimal to invest in post-migration human capital at all, then the investment will be made immediately after entry, assuming that capital markets are perfect. The wage rate is a function of the total, as well as the mix of pre-migration and post-migration human capital. The cost of acquiring additional human capital depends on the immigrant’s education. Immigrants arrive not only with a given stock of human capital, but also with assets, which can be positive, zero or negative.

Comparative static results based on the model briefly outlined above (Schaeffer, 2005) show the expected result that a higher (lower) discount rate discourages (encourages) human capital investments. Also, the longer the expected time in the destination country, that is, the younger the immigrant, the larger the value of investing in
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additional human capital and vice versa. Choosing not to add to human capital after immigration is optimal if marginal direct costs plus opportunity costs are larger than marginal benefits. The likelihood of this occurring increases with the immigrant’s age. Highly educated immigrants may also forgo additional human capital investments, particularly immigrants from countries with a similar system of higher education and a common language (Baker & Benjamin, 1997), since most of their pre-migration human capital investment should be valued similarly to that acquired in the destination country. Conversely, because additional education not only increases the immigrants’ stock of human capital (e.g., expressed in “years of schooling”), but also validates their pre-migration human capital, investing is attractive for immigrants who are efficient at acquiring human capital (e.g., good knowledge of the language of destination country) and who bring with them a sizeable stock of foreign human capital whose quality is viewed with uncertainty by prospective employers in the destination country (e.g., immigrants with degrees from “obscure” foreign universities, particularly those in countries with a significantly different culture and educational system).

The second group of immigrants likely to forgo additional human investments is almost the exact opposite of the first and consists of those with very little transferable human capital. Because they would have to start almost “from scratch”, it would take them a long time to accumulate a stock of human capital to qualify as highly skilled. Assuming, as the authors do, that they arrive as adults but not as dependent children, they would have considerably less time left to enjoy the benefits of the investment than natives and immigrants with significantly more transferable foreign human capital. This group of immigrants is therefore less likely to make large formal human capital investments, everything else being held equal. The disincentive is particularly strong for investing in formal education, but on-the-job training and work experience may serve as (imperfect) alternatives. For the purposes of this study, which focuses on the highly skilled, this group is not of interest to us.

The timing of migration is equivalent to answering the question of how much to invest in pre-migration human capital. Assuming that permanent emigration is the ultimate objective and, if emigration is successful, how much to invest in post-migration human capital. Let \( \Gamma \) be the time spent in the origin country before emigration. The successful emigrant will choose \( \Gamma \), so as to maximize total lifetime consumption, which is determined by the difference:

\[
\text{Discounted Lifetime Consumption of Successful Migrant (CSM)} = \left[ \text{Initial Assets} + \text{Discounted Earnings in Period 3} \right] - \left[ \text{Total Discounted Costs of Pre-migration and Post-migration Human Capital Investment} \right]
\]

However, the individual must also consider the possibility that emigration may not be successful. We assume that a prospective emigrant who fails will make no additional human capital investments after time \( \Gamma \), that is, there are only two periods, one from 0 to \( \Gamma \) and the other from \( \Gamma \) until death. The authors will show below that this is a reasonable assumption. The non-emigrant’s discounted lifetime consumption is then determined:

\[
\text{Discounted Lifetime Consumption of Unsuccessful Migrant (CUM)} = \left[ \text{Initial Assets} + \text{Discounted Lifetime Earning in Home County} \right] - \left[ \text{Discounted Costs of Human Capital Investment in Home Country} \right]
\]

In both cases, the longer the first period \( \Gamma \), the less is left over for consumption from initial assets or the greater the debt to be repaid once the individual begins working, if costs exceed assets. Of course, there is also less time left to benefit from the human capital investment.

Finally, assume that the probability of being admitted into the destination country is positively related to pre-migration human capital, that is \( \Gamma \). The authors denote this probability \( P(\Gamma) \). Comparative analysis (see
discussion above) revealed that the length of the period of post-migration human capital investment is positively related to the length of the total expected lifetime, and therefore is negatively related to $\Gamma$. It is more difficult to determine if the length of the period of post-migration investment is positively or negatively related to the amount of pre-migration human capital acquired ($H_{Pre}$) by time $\Gamma$, because we do not know how $H_{Pre}$ influences the costs of investing in $H_{Post}$. However, since $H_{Pre}$ is a (imperfect) substitute for $H_{Post}$, it is reasonable to assume that the length of the second period (in case of emigration) is negatively related to $H_{Pre}$.

The individual will choose $\Gamma$ so as to maximize total expected lifetime consumption $C_{EXP}$:

$$C_{EXP} = P(\Gamma)C_{SM} + (1 - P(\Gamma))C_{UM}$$

(1)

Of course, assuming that $C_{SM} > C_{UM}$, so that emigration will be chosen if the destination country grants a visa. We can separate optimizing in the period 0 to $\Gamma$ from optimizing in the other periods because of the sequential nature of the decision-making, and solve the optimization problem sequentially, going backwards. The FOC for the period 0 to $\Gamma$ is simple because $\Gamma$ is the only decision variable.

$$\frac{dP}{d\Gamma}(C_{SM} - C_{UM}) + P \frac{dC_{SM}}{d\Gamma} + (1 - P) \frac{dC_{UM}}{d\Gamma} = 0$$

(2)

Under the usual assumptions of decreasing returns, the second order condition for a maximum is satisfied. The first term in equation (2) shows the net gain from the increased probability of successful emigration and the sum of the second and third term is the expected net gain from investing in additional $H_{Pre}$.

It follows from equation (2) that an individual who cannot (P(0) = 0 for all $\Gamma$) or does not wish to emigrate will invest in $H_{Pre}$ until $dC_{UM}/d\Gamma = 0$. If $P(\Gamma) > 0$, then investment beyond $dC_{UM}/d\Gamma = 0$ may occur because the first term in equation (2) is positive by assumption. This result implies that unsuccessful candidates for emigration will not add to $H_{Pre}$ after time $\Gamma$, and therefore justifies the assumption we made above. Even if $dC_{SM}/d\Gamma$ turns negative before $dC_{UM}/d\Gamma$ an investments beyond $dC_{UM}/d\Gamma = 0$ is possible as long as $dP/d\Gamma$ is sufficiently large and $C_{SM} >> C_{UM}$. If $dC_{SM}/d\Gamma > dC_{UM}/d\Gamma \forall \Gamma$, then individuals who plan to emigrate will acquire more human capital than otherwise identical individuals who prefer to stay, for any value of $P(\Gamma)$. Thus, a policy favoring highly educated applicants for the award of permanent resident visas (expressed by $dP/d\Gamma > 0$), for example through a H-1B stepping stone process, creates an incentive for would-be emigrants to invest in $H_{Pre}$ beyond what would be optimal were the individual to stay (Schaeffer, 2005).

To more fully understand the costs and gains of investing in $H_{Pre}$, equation (3) presents the expanded version of equation (2). The symbol $A$ represents initial assets and $\tau$ is the length of period 2 in case of emigration (time spent acquiring $H_{Post}$).

$$\frac{dP}{d\Gamma}(L-1) + P \left[ \frac{\partial C_{SM}}{\partial \Gamma} + \frac{\partial C_{SM}}{\partial \tau} \frac{d\tau}{d\Gamma} + \frac{\partial C_{SM}}{\partial H_{Post}} \frac{dH_{Post}}{d\Gamma} + \frac{\partial C_{SM}}{\partial A} \frac{dA}{d\Gamma} \right] + (1 - P) \left[ \frac{\partial C_{UM}}{\partial \Gamma} + \frac{\partial C_{UM}}{\partial H_{Post}} \frac{dH_{Post}}{d\Gamma} + \frac{\partial C_{UM}}{\partial A} \frac{dA}{d\Gamma} \right] = 0$$

(3)

In each of the two terms in brackets, the negative signs signal aspects of the marginal costs of further investing into $H_{Pre}$, and the positive terms the marginal gains. The costs consist in the reduction of the length of the period(s) after investing in $H_{Pre}$ and the reduction in assets $A$ as more of them are used up to finance $H_{Pre}$. In
both cases, staying and emigration, the gains consist of enhanced earning power. Finally, if \( 0 < P < 1 \), then an added benefit will be the enhanced probability of successful emigration.

If \( H_{Pre} \) is a close substitute of \( H_{Post} \), and if the costs of acquiring \( H_{Pre} \) are small relative to the cost of acquiring \( H_{Post} \), then \( \frac{\partial C_{SM}}{\partial H_{Pre}} \frac{dH_{Pre}}{df} \) will be larger and \( \frac{\partial C_{UM}}{\partial A} \frac{dA}{df} \) will be smaller than otherwise. In such a case more human capital investment will take place in the origin country, regardless of the value of \( P(\Gamma) \). If \( H_{Pre} \) is a perfect substitute for \( H_{Post} \), then all human capital will be acquired before emigration and \( H_{Post} \) will be zero.

Natives acquire all of their human capital in their home (the migrants’ destination) country. Emigrants acquire a pre-migration human capital stock and may spend additional time accumulating human capital after migrating. Assume that \( H_{Pre} \) is an imperfect substitute for \( H_{Post} \) \( (H_{Pre} + H_{Post} = H) \), and also assume that wages are higher in the destination than in the migrant’s origin country for any combination of \( H_{Pre} + H_{Post} \). Then the earnings forgone while investing in \( H_{Post} \) are smaller for immigrants than for natives, and the former will therefore spend more total time (pre-migration and post-migration combined) on acquiring human capital than otherwise identical natives. The additional time will not result in higher wages than those of natives. However, because it will generally not be optimal to spend the time required to completely make up for the lower value of \( H_{Pre} \), compared to that of \( H_{Post} \). This result is compatible with those of Reyes (1997) and Schoeni, et al (1996).

3. Implications for evaluating the H-1B program

In the previous section we explained why and how the possibility of gaining permanent residence in the United States, for example through the H-1B visa program, influences behaviors of non-resident job applicants. Therefore, of the salaries offered are the same, the expected return of an H-1B job is greater for a current non-resident applicant than for a citizen or green card holders. For the non-resident, the H-1B promises the possibility of a green card in the future, and with it access to more career opportunities than with the H-1B visa which, as we shown above, is quite restrictive. Therefore, when natives and applicants look at the same job opening, they do not face the same incentives.

In Fig. 1, the authors represent the joint labor market of natives and potential H-1B visa applicants. For natives, wage is a function of \( H_{Post} \) only; they acquire all of their human capital in their home country. For H-1B immigrants, wage is a function of \( H_{Pre} \) and \( H_{Post} \). The authors assume that employers consider immigrants and natives as perfect substitutes for one another, that is, assuming that \( W_{Native} (H_{Post}) = W_{Immigrant} (H_{Pre} + H_{Post}) \). For natives, the wage accounts for the total remuneration from working, while for H-1B immigrants the total remuneration is the wage rate plus the expected value of a green card, which is a function of the probability \( P \), of being able to convert from an H-1B visa to a green card. \( L^* \) and \( W^* \) denote the equilibrium when there is no limit on the number of visas issued. Fig. 1 also shows the optimal number of natives and immigrants being hired. As expected, the addition of immigrants to the supply of labor lowers the wage rate for natives relative to what it would be without immigration. This difference, \( W^* \) w/o Immigration—\( W^* \), consists of two parts. The part designated \( dW^* \), shows the effect immigration would have if prospective immigrants attached no special value to obtaining an H-1B visa, that is, if it was not a potential stepping stone to a green card. The second part, \( dW^*_2 \), shows the effect of the increase in the number of foreign applicants when the visa has a positive value that is part of the total remuneration received by successful immigrants under this plan. If the rule that immigrants should be
paid the same as equivalently qualified natives is enforced, then immigrants’ total remuneration exceeds that of natives by $EB^*$. The authors assume that workers move for pecuniary reasons only. If there is a quota, and if the equal pay rule is not strictly enforced, then an equilibrium solution exists in which immigrant labor is paid less than natives. No migration will occur if the wage rate in the destination country is below that of the origin country.

![Diagram of labor market equilibrium with H-1B visa quota](image)

Fig. 1  No restrictions on the number of H-1B visas

Fig. 1 shows the expected benefits from obtaining a green card as a positive function of the wage rate. This assumption seems reasonable, but other assumptions can be made without altering the nature of the theoretical result, as long as there is a benefit. The functional form of the benefits is significant for empirical work, however.

Fig. 2 shows the labor for the highly skilled when the number of visas is limited by quota and the equal wage rule is strictly enforced. If the quota is equal to $L^*_\text{Immigrant}$, then in a competitive labor market, H-1B holders will receive the wage $W^*$, which is the same as that of natives. If the quota is greater than $L^*_\text{Immigrant}$, then the quota beyond $L^*_\text{Immigrant}$ will remain unused.

Assume that the quota is set larger than zero and smaller than $L^*_\text{Immigrant}$. The horizontal distance labeled $Q$ marks the size of the quota. Obviously, the smaller the quota, the closer the new equilibrium wage rate; $W^*_Q$, will be to the equilibrium wage rate without immigration $W^*_0$. At the wage $W^*_Q$, non-wage component of the

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1 In practice, the “equal wage rule” is that H-1B visa holder should be paid at least 96% of the prevailing wage rate.
remuneration is given by $EB_0$. Since $EB_0 > EB^*$ and $W^*_Q > W^*$, a binding quota increases the attraction of the H1-B visa and, without strict enforcement of the equal wage rule; $W^*_Q$ cannot be an equilibrium wage, since the demand for H-1B visas exceeds the quota. Therefore, if the equal wage rule is not strictly enforced, competition among prospective immigrants will lead to bidding below $W^*_Q$, and H-1B holders will end up earning a lower wage, but not a lower remuneration, than natives. The authors will provide more detail regarding this issue in the next section.

Compared to the case, when the quota is equal to $L^*_{Immigrant}$, employment of natives, $L^*_Native$ is larger and total employment $L^*_Native + L^*_Immigrant$ is smaller. Therefore, the equilibrium wage rate for natives is higher than that in the case without quota. In the next section, the authors consider the equilibrium wage rate that will prevail for immigrants if the equal wage rule is not strictly enforced.

Next, consider the case when immigrants and natives are perfect substitutes, but hiring an H-1B immigrant is more costly than hiring a native. The additional cost can be explained, for example, by the cost to the employer of
working with the prospective immigrant to obtain the H-1B visa. In Fig. 3, the authors represent this cost as a fixed cost, independent of the wage level. The effect is a parallel shift upward of the wage-supply curve of immigrants, compared to Fig. 2.

Compared to Fig. 2, the number of immigrants has decreased (double arrow labeled $D$), while the number of natives hired has increased. Assuming enforcement of the equal pay rule, Fig. 3 also shows that $W^*$ is higher than that required to attract the desired number of immigrants. In fact, as shown in Fig. 3, it is higher than the wage rate required plus the expected benefits of obtaining a green card. Therefore, the supply of potential immigrants exceeds the demand. In this situation, unless the equal pay clause is strictly enforced, we should expect applicants to compete against each other for the limited number of visas by offering to work for less than $W^*$.

Fig. 3  Extra cost of hiring H-1B immigrants

4. Competition among H-1B visa applicants

The remuneration of H-1B visa holders consists of wages and the expected benefits of a green card. The latter are not identical for all immigrants, but are likely to differ systematically by country of origin. Fig. 4 represents two groups of prospective H-1B immigrants, one from country $A$ and the other from country $B$. The authors assume that the two groups are of the same size and that their members are identical in every respect and except the prevailing wage rate in their respective country of origin. The wage rate in country $A$ is lower than that
in country $B$.

The authors first look at the case without quota. In this case, given the wage rate in the destination country, and assuming perfect enforcement of the equal wage rule for equivalent qualifications, the number of applicants from country $A$ (lower wages) is higher than that from country $B$. Furthermore, for a given wage rate $W$, the expected benefits from obtaining a green card $EB_A$, are higher for H-1B visa holders from country $A$, than for those from country $B$ ($EB_B$). If there is a quota, $Q < L_{A&B}$, and assuming that the equal wage rule is not enforced but that labor markets are competitive, then H-1B holders will end up with a lower wage than natives with equivalent qualifications. If the quota is set low enough, they may even end up with a smaller total remuneration than natives. This is the case when the wage for H-1B holders drops below $W_B$ and $W_A$, respectively, where $W_A < W_B$. That is, because the opportunity costs of emigration are lower in country $A$ than in country $B$, the value of the H-1B visa as a stepping stone to a green card is greater for migrants from $A$ than from $B$.

If the equal wage rule is enforced and the wage of H-1B holders is the same as that of natives, then there is no equilibrium because at that wage there are $L_{A&B} - Q$ more applicants for visas than will be issued. In this case, applicants can use non-wage means to compete for available slots. Such competition could take several forms, including acceptance of less desirable jobs or signaling above market average qualifications. If the equal wage rule is enforced, but enforcement is not perfect, then the outcome will be a combination of wage, and non-wage concessions are made by H-1B visa applicants. The discussion in the preceding paragraph shows that, to the extent
that migrants can get away with wage concessions, and H-1B holders from country A can be expected to offer bigger concessions than those from country B.

5. Summary and discussion

In the theoretical background section (section 2), the authors showed that a positive relationship between level of education and probability of obtaining a green card results in more highly educated immigrants than would otherwise be the case. This effect is not only because of the obvious selectivity if education is used as a criterion in awarding green cards, but because the aspiration for green card will acquire more human capital than they otherwise would. That is, the quality of the pool from which applicants are chosen increases. In section 2, the authors have also shown that we should expect to see differences among prospective migrants by country from different origins, if the costs of acquiring human capital differ between them. The difference is further reinforced if the destination country values human capital obtained in one country differently from that obtained in another country. Put differently, employers in the destination country do not perceive human capital obtained in origin country A as a perfect substitute for human capital obtained in origin country B. Finally, in section 2, the authors also showed that if U.S. employers consider human capital acquired before emigration as an imperfect substitute to human capital acquired in the United State, for example, because of difficulties asserting its true value up front, immigrants tend to have more years of schooling than natives, but not enough to make up for the perceived quality difference in human capital. Hence, immigrants that look more qualified (more years of schooling) may receive a lower wage than natives, even in a competitive labor market.

In section 3, the authors demonstrated that without a quota, H-1B visa holders and natives will be paid the same. With a quota their wages will differ, unless it is possible to enforce the equal wage rule perfectly. This seems unlikely (Martin, 2008; Matloff, 2004). The authors also found, as expected, that the H-1B program lowers the wages of natives relative to what they are without immigration.

In section 4, the authors looked at the case with a binding quota and two countries that are identical in size of skilled labor force, quality of education (considered to be perfect substitutes by employers in destination country), and every other respect, except the wage rate. In this case, there will be more H-1B immigrants from the country with the lower wage rate than from the country with the higher wage rate. The reason for the “overrepresentation” of H-1B immigrants from the poorer country is that the expected value of the H-1B visa as a stepping stone to a green card (permanent residency with eventual option of citizenship) is inversely related to the wage rate in the origin country. Therefore, unless the rule that individuals with equivalent skills and knowledge (human capital) should be paid the same (equal pay rule) can be enforced perfectly, we will expect to see systematic differences in pay by country of origin, everything else being equal.

Based on these findings, it is therefore not justified to conclude that H-1B visa holders are less qualified than natives only because they are paid less. As our research shows, there are several reasons to expect lower pay for H-1B immigrants unless the equal wage rule is enforced perfectly (Matloff, 2008).

Zavodny (2003) studied the wages of H-1B holder by nationality, but her results are inconclusive because of aggregation across different industries. There is a tendency for H-1B migrants from Canada and the United Kingdom, two countries that share a language and many cultural and legal traditions with the United States, to receive pay above the average. However, immigrants from high-wage Japan are the lowest paid among the nationalities for which data are shown. Since they constitute only 1.8% of H-1B recipients, it is possible that this
is a statistical anomaly. It is also possible that different immigrant groups are drawn to different industries. Because there are significant pay differences by industry, it is possible that the comparatively small number of Japanese H-1B holders is disproportionately employed in sectors that have low pay.

In summary, our analysis demonstrates the inherent difficulty of comparing the qualifications of immigrants versus those of natives by comparing wage rates, or by comparing paper qualifications, such as degrees earned, or their level of hire (entry level, qualified, experienced, fully competent), as done, for example, by Matloff (2008). Such comparisons yield inconclusive results because without additional information, we cannot know if they indicate that H-1B immigrants are less qualified or if, as shown above, they are accepting jobs for which they exceed the qualifications, or they accept lower salaries than natives, as part of the competition among prospective H-1B applicants for the limited number of visas.

Our theoretical analysis does not imply that H-1B immigrants will have superior qualifications than natives competing for the same job, and it only implies that this is a possible outcome. Therefore, the comparisons mentioned above are inconclusive. Given that any addition to the supply of highly skilled workers will lower the market-clearing wage rate, it is also clear that employers have an incentive to exaggerate the shortage of such workers. Without rigorous enforcement of rules, such as the equal pay rule, abuse is likely. What unlikely is that employers will pay the same wages to less qualified immigrant workers than they pay native workers. However, a conclusive empirical study comparing the qualifications of H-1B workers relative to those of natives is not yet to be written.

References:

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Study on employee recruitment risk in hotel industry

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Abstract: As a service industry, hotel industry gives special requirements to its employees. Due to the nature of work, pay and other reasons, hotel managers and employees have great liquidity. The frequent turnover of employees will affect the daily business activities which are not beneficial to improve the economic efficiency of the hotel; The hotel recruitment costs are also increased. This paper analyzes the hotel recruitment risk from three aspects: selection risk of recruitment channels, professionals assessment risk and recruitment agency risk. Based on the analysis of recruitment risk, this paper introduces the reasons existed in employees’ recruitment risks, and finally gives some relevant solutions to avoid the risk in employees’ recruitment.

Key words: recruitment risk; hotel recruitment; acting recruitment

1. Preface

Hotel recruitment is important to the hotel management, and recruitment risk has a direct impact on the economic effect and development. In the human resources market, information asymmetry is the source of the positioning error of people. Information asymmetry would undermine the effective use of human resources in human resources management, resulting in errors in the recruitment process and bring risks to the organization recruitment (XU Chun-li, 2007). Enterprise can only reduce recruitment risk to a certain extent, and it is impossible to reduce it to zero. The existence of recruitment risk makes people think seriously about how to lessen it. Recruitment risk should be viewed from a strategic point. Organizational structure, strategy and culture will have an impact on recruitment activities (Naresh Khatrl, Jack Wells, Jeff Mckune & Mary Brewer, 2006). Every enterprise expects the best result of cost-effectiveness, increases the suitable job seekers as many as possible, and minimizes the screening costs (SUN Hui, YU Hui-chuan & SUN Jian-ping, 2004). There are four kinds of recruitment risks: the risk of the returns on the recruitment cost, the risk of the select channels, the risk of return rate, the risk of the talent ethics. Asymmetric information, the quality and motivation of the recruiters and the evaluation technology of talent identification are the main reasons that cause recruitment risks. Enterprise should take some actions such as strengthen the external constraints to the people selection, the enlargement of the scope of talent selection, the elite recruiters in charge of the recruitment, and a sound mechanism for talent identification (LIANG Mao-hui, 2007).

With the development of information technology and the increasing importance of human resources management, hotel recruiter has achieved a better understanding of the recruitment risk and hotel recruitment management has offered new requirements: Recruitment and selection are strategic work; The traditional concern of the right number of employees at the right time and right place has turned to the process of access to the most important resources; More and more functional and professional sector participate in the recruitment; The qualities of the recruiters are of a higher demand; The methods of selecting employees are more and more scientific.

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2. The definition and types of hotel recruitment risk

2.1 The definition of hotel recruitment risk

Hotel recruitment refers to practices and activities taken by the hotel for the primary purpose of finding and attracting potential employees. In practice, hotel recruitment acts as a bridge between human resource planning and human resource selection. The purpose of hotel recruitment is not simply to attract a large number of candidates. If a hotel attracts a lot of disqualified candidates, the hotel will pay lots of recruitment costs, but there are hardly qualified candidates to fill in the vacancies, so new staff’s recruitment and selection process is very complex. It is possible that the hotel cannot recruit competent staff to meet the operational needs, and organizations cannot control staff movement after the recruitment. Therefore, the hotel cannot create a satisfied efficiency without a waste of material, capital and time investment. This uncertainty that recruitment may bring forth the loss is recruitment risk. So we have to look into the characteristics and types of hotel recruitment risk, strive to accurately grasp the risk, and minimize the recruitment losses.

2.2 The types of hotel recruitment risk

2.2.1 Selection risk of recruitment channels

A lot of ways can be used to release recruitment information, but every recruitment channel has its advantages and disadvantages. (1) Post bulletin and post tender. It is a low-cost recruitment channel but the hotel must let every staff know the information of vacant position, if there is no restriction on the job changes frequency in a certain period, it may cause instability and high position flow. (2) Technical files of posts. With the popularization of computers, hotels also begin to use the computerized skills for internal recruitment. And information is frequently updated; The human resources managers can get a comprehensive and timely understanding of the latest situation. However, the risk lies in the fact that the information may be leaked; There is risk that competitors get the information and poach the good staff. (3) Employee’s recommendation. This is the most direct but the most risky method of internal recruitment. It’s easier to form small groups and informal organizations, which is likely to form fatal injury to hotel. (4) Employment service agencies. When hotels recruit temporary staff, they usually turn to private employment service agencies for help. But private employment service agencies provide service to meet clients’ needs through charging them. If the commission is paid as consultancy fees, they actively contribute to ask job-seekers to receive inappropriate jobs for money, so the hotel can not achieve its true purpose of recruitment.

2.2.2 Professionals assessment risk

The neglect of human resources cost and the pursuit of highly educated staff result in the phenomenon that the recruitment conditions don’t meet with the actual requirements of posts. So the recruitment process can not be normally going. Hotels can not recruit suitable staff. Even though you can recruit many staff, the flow of new staff is also very large. Because of asymmetric information, candidates have more “private information” of their own actual capability. Relying on interviews and written tests, it is difficult for recruiters to fully exploit this information. The recruiters can only evaluate the candidates from the surface. Some candidates, who do well in the tests, usually can get high appraisal from the recruiters. But when they take the jobs, their actual low abilities are immediately exposed, and thus it is detrimental to the hotel development.

2.2.3 Recruitment agency risk

All or part of the hotel recruitment can be outsourced to the recruitment agency, and they select the most suitable candidates for the position with specialized tools, techniques and ideas. Though this approach has a
greater advantages than the traditional recruitment method, there are also certain risks. For example, excessive use of recruitment agency will make the hotel put over-reliance on the recruitment agency, which is not beneficial to the complete control over the recruitment process. It is possible that the internal confidential information are leaked to competitors. It is often difficult to control the cooperation with the recruitment agency company. If the recruitment agency company and hotel can not maintain a consistent philosophy, there will be some differences to determine whether the new staff is suitable to the hotel, so it may result in excessive recruitment costs, and even ineffective recruitment.

3. The cause analysis of recruitment risks

3.1 Information asymmetry

Candidates possess his or her personal information and want to show their best sides, but hide the weakness, so it is difficult for recruiters to fully find out all the actual capabilities of the candidates. At the same time, there are some test players who understand the interview process, and make a camouflage to cause a false good impression. In fact, their actual performances can not meet with the capacity. If these people are hired, the hotel undoubtedly will bring forth an immeasurable loss.

3.2 The limitations of recruiters

A competent recruiter must have good professional manner, professional skills, communication skills, adaptability and a higher level of knowledge, or it is not beneficial for he or she to communicate with the applicant, so the applicant cannot truly display himself or herself. Another important reason is that people’s rational thought and mind is limited, which will lead to an inevitable bias in decision-making. It is manifested in the random performance assessment, the subjective analysis, personal preference in tests, and the determination trend followed by their own habits.

3.3 Uncertainty of recruitment costs and returns

Hotel human resources management ignores the human resources costs, and does not consider the hotel’s actual needs. So it is unable to retain the staff. Some people have the prejudices of talents use in pursuit of highly educated employees who must do the job from the basic level. It results in the increased management costs, and also creates a waste of human resources. Because of no career develop space, the hired highly educated people will switch to other hotels, which brings the liquidity risk.

4. Measures of controlling hotel recruitment risk

4.1 Grasp the basic recruitment principles

Firstly, recruiters should be honest to the candidates and show the good image to the applicants. The hotel’s reputation has a great impact on attracting the potential candidates. Hotel recruiters need to supply candidates with true, accurate and complete information about the job, in order to choose appropriate employees and reduce the turnover risk. Hotel, as a service industry, is required to set up a good image. Whether it has established a good reputation for treating its employees well, the qualities of employees in human resources department have important impacts on the hotel image.

Secondly, we should examine the match between candidates and the hotel culture. Even though the candidates have strong capacity but can not integrate into the hotel culture, they are not beneficial for the long-term hotel development. In the beginning of the recruitment, candidates should be allowed to fully
understand the hotel’s work environment and culture. This is to say, the hotel should put the training into the recruitment process, so the hotel can reduce the recruitment time and costs. It is conducive to quickly determine the recruitment employ targets, to promote the new staff to integrate into the work quickly after the recruitment.

4.2 Control the recruitment returns and costs risk

Hotel recruiter should give full consideration to the consistency of recruitment conditions and the post requirement, and grasp the psychological characteristics of candidates. For simple jobs, the hotel recruiter can reduce the employment requirements; For candidates with higher education level and capability, the hotel recruiter can make the candidates undertake the job after a period of further training. If he or she is suitable for the position, the hotel manager can push he or she to the executive position. The hotel should make a reasonable arrangement for the employees, give competitive salary and proper career development space, create good working environment in order to reduce the employees liquidity and recruitment costs.

4.3 Control the recruitment selection risk

In the internal recruitment, recruiters must understand the details of candidates as much as possible. When the hotel adopts post bulletin, specific policies must be made to limit the transformation frequency from one position to another position in a certain period, in order to reduce the mobility of employee. When the hotel turn to position files, the hotel must keep the internal information especially outstanding employees’ information secret. If the hotel adopts employee’s recommendation, the rotation system should be taken after recruitment process to avoid the formation of small groups. External recruitment costs are higher. The lack understanding of the candidates will increase the recruitment risk. The hotel should make an overall and comprehensive understanding with the applicant, know about whether the applicant is suitable for the position and hotel culture in the process of interview. The hotel can also employ psychologists to carry out psychological tests, carry out background investigation and make full use of the probation opportunity to examine the applicants.

4.4 Control the recruitment agency risk

The hotel recruiter should know the employee recruitment agencies as much as possible, and choose one with more professionals, higher business level and reputable image. Before the recruitment, the hotel recruiter should sign a legal agreement with it in order to protect the legitimate rights and interests of the hotel. The rights and obligations of the two sides must be signed clearly in the contract. Both sides confirm the same understanding to enhance cooperation efficiency and reduce the hotel recruitment risk. The other important thing is to monitor the recruitment process and strengthen mutual communication, so if anything occurs, they can communicate with each other. Hotel must detect and assess the recruitment work of the recruitment agency regularly to identify the problems and solve it in time. At the same time, hotel establishes an incentive mechanism, so the recruitment agency and the hotel can enjoy the profits and share the risk together.

5. Conclusions

The hotel manager must minimize recruitment costs besides emphasizing its main business, and improving the hotel economic efficiency in order to survive and develop well. Only by this way, the hotel can reach better service level and increase the economic benefits. Therefore, the hotel should select the appropriate recruitment methods, and carry out strict supervision and guidance in the recruitment process according to the characteristics of people in different positions and the hotel actual situation. After the staff recruitment, hotel manager also needs

(to be continued on Page 63)
The institutional innovation and improvement in building of the East Asian corporate governance model

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Abstract: The East Asian corporate governance model is gradually established based on institutional innovation of western corporate governance. This paper holds that institutional innovation of the East Asian corporate governance model is mainly manifested in following aspects: the relational style of governance mechanisms, more intervention of government, high concentration of ownership structure and unique operation of the power institutions etc. This unique model of corporate governance is considered as one of the motivations of “East Asian Miracle”, but it also causes many problems. After the Asian financial crisis, the East Asian countries and regions reform and improve their pattern of corporate governance and obtain some results. The paper deems that reduction of government intervention and legal protection provided by judicial system are crucial for corporate governance.

Key words: East Asia; institutional innovation; corporate governance model

1. Introduction

The structure of corporate governance is a set of institutional arrangements, dealing with the relationship among different stakeholders, namely shareholders, lenders, managers, and employees in order to achieve the economic goals. It includes allocation and implement of controlling rights, supervision and evaluation among the board of directors, managers and workers, as well as design and implement of incentive mechanisms, and so on. From the perspective of institutional economics, corporate governance structure is also a kind of institutional arrangements. In accordance with the views of the school of institution, the structure of corporate governance is regarded as an institutional arrangement, which can dominate the relationship with a major interest group in firm-investors (shareholders & lenders), managers and employees, and gain economic benefits from the union. The institutional innovation of corporate governance structure includes the adjustment, reform and change of institution.

The academic community has done some research on characteristics of East Asian corporate governance mechanisms. For example, Tsuru Kotaro points out the importance of main banks in Japanese corporation restructuring. In his view, the rights of management control will be transferred to the main banks when corporations are in financial distress (Tsuru Kotaro, 2001, pp.32-41). Therefore, the characteristic of the main banks is neither affiliated to nor separated from enterprises. Meredith • Woo Cumings finds out that the pattern of Korean corporate governance has many similarities to Japan and Germany through the study of “East Asian Miracle”. However, the main supervision agent of Korean enterprises is government, which exerts powerful...
influence to investment and involves in the change of controlling rights of firms (Joseph E. Stiglitz & Shahid Yusuf, 2003, pp.237-254). The above-mentioned study is meaningful, however, there’s generally no research on corporate governance of East Asia from the aspects of institution and institutional innovation.

Through building of the East Asian model of corporate governance, how do they carry out institutional innovation? How about the performance? What are the problems in institutional innovation? How do they adjust and solve the problems? Up to now, the research on them is blank-point in the academic area.

2. The main contents of institutional innovation of East Asian corporate governance model

As a rising star of economic development, the development path of East Asia is different from Europe and the United States. It is the same with corporate governance mechanisms. In economic development, the East Asia gradually forms a set of corporate governance mechanism and model, which is different from Europe and the United States. The institutional innovation of East Asian model is mainly manifested in the following aspects.

2.1 The relational style of governance mechanisms

Different from the governance of Britain and the United States considering control rights market of firm as the core, the external governance in East Asia shows a non-market, close bank-enterprise relations. In East Asia, the creditor’s supervision is particularly important. The capital market (stock and bond markets) develops slowly as a result of financial repression. Therefore, banks are the main body of financial system. The indirect financing system based on bank lending, determines that the banks are the most important providers of finance. The banks play a dual role as shareholders and creditors at the same time. Thus, it has formed the governance structure of participation in decision-making which the “external person” gets into the “internal governance”. In Japan, the main banks involve in corporate governance like this way: There is no interference, when enterprises operate normally, but intervention is needed, when enterprises have serious problems with operation. The financing structure of Korean companies is mainly based on the indirect financing, particularly the bank lending. And they also establish the “main bank” system following the example of Japan. But different from Japan, their supervision to enterprises is extremely limited.

2.2 The active involvement of government in corporate governance

In East Asia, the industrial policies and financial systems, formulated by the government in different periods has promoted the formation and development of enterprises. The corporate governance has been branded with coercive institutional changes. In Korea, the development government plays a supervision agent role to the corporate governance. The government, as a creditor, alleviates the problem of information asymmetry in prior supervision, through setting investment projects. The government active participation in enterprises supervision and management through the entire process of investment projects, also resolves the problems of information asymmetry in medium-term and afterward supervision, and prevents the inactive and non-efficiency of operators. Therefore, the Korean government actually exercises the functions of main banks in the German-Japanese model, that is, to prevent the non-efficiency investment of Chaebol by a high debt ratio.

2.3 The high concentration of ownership structure

The ownership structure refers to the change of owners of shares and the number of shares in joint-stock companies. In general, the East Asian companies have a characteristic of highly concentrated ownership structure. The ownership is concentrated in a few large shareholders through cross-holdings. In addition to Japan, the major
The institutional innovation and improvement in building of the East Asian corporate governance model

share of East Asian listed companies is controlled by a single shareholder or families. It is owned by the government in Singapore and mainland of China. However, the stock-owned ratio of dispersed investment institutions (such as funds and pension insurance) is low in East Asian corporate ownership structure. This is obviously different from the European and American firms, whose institutional investors are the largest shareholders of listed companies (see Table 1).

<table>
<thead>
<tr>
<th></th>
<th>Hong Kong, China</th>
<th>Japan</th>
<th>Korea</th>
<th>Taiwan, China</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of observed companies</td>
<td>330</td>
<td>1240</td>
<td>345</td>
<td>221</td>
<td>141</td>
</tr>
<tr>
<td>Portion of public shareholding (%)</td>
<td>7.0</td>
<td>85.5</td>
<td>51.1</td>
<td>7.6</td>
<td>28.0</td>
</tr>
<tr>
<td>Portion of family shareholding (%)</td>
<td>71.5</td>
<td>4.1</td>
<td>24.6</td>
<td>44.8</td>
<td>45.5</td>
</tr>
<tr>
<td>Portion of government (%)</td>
<td>4.8</td>
<td>7.3</td>
<td>19.9</td>
<td>40.1</td>
<td>3.3</td>
</tr>
<tr>
<td>Portion of scattered investment institutions shareholding (%)</td>
<td>5.9</td>
<td>1.5</td>
<td>0.2</td>
<td>2.7</td>
<td>5.4</td>
</tr>
<tr>
<td>Portion of dispersed firms shareholding (%)</td>
<td>10.8</td>
<td>1.6</td>
<td>4.3</td>
<td>4.8</td>
<td>17.8</td>
</tr>
</tbody>
</table>


2.4 The unique operating mechanism of power

Although East Asian enterprises set up meetings of shareholders, boards of directors, board of supervisors (there is no board of supervisors in some countries) imitating the Britain and the United States, the proportion of internal directors in board is too large. There is generally no independent director or external director. In Japan, under normal circumstances, general managers nominate candidates of the directorate, and the meeting of shareholders and boards of directors are actually controlled by the managers. In East Asian family business, the family owns enterprise ownership and control power, and the board of directors and managers are all from family.

3. The performance of institutional innovation of East Asian model of corporate governance

The performance is manifested mainly in the following aspects.

3.1 Safeguarding the stable operation of enterprises

The shares of East Asian enterprises are concentrated by a few big shareholders, which supervise their operators more effectively so as to avoid the “free rider” of scattered small shareholders and reduce agency costs, caused by information asymmetry. High concentration and stability of equity protect the stability of the operation. The operators focus on long-term operating as they do not have to worry about take-over, which maintains long-term stability of divided groups different interest.

3.2 Saving transaction costs

In the East Asian enterprises, especially the family business, their members receive dual incentives and constraints from family and its interests. On one hand, this improves the efficiency of the internal management of enterprises and reduces the costs of supervision and control. On the other hand, the enterprises incline to establish long-term cooperation with partners and to form interdependent mutual network of firm organizations based on long-standing network of social relations. The long-term transaction based on mutual trust is more efficient than a one-time transaction based on contract and the transaction. And costs are lower.
3.3 Promoting East Asian economic growth and development

The East Asian model of corporate governance is characterized as concentrated ownership, non-market financing channels and the internal control which enables firms to obtain new market opportunities, expand production and diversify its operation in case of reducing internal transaction costs. This diversified operation promotes the economic growth of East Asia to some extent, and it is one of the motives of “East Asian Miracle”.

4. The problems and improvement of institutional innovation of the East Asian model

There are some problems in the process of institutional innovation of the East Asian model of corporate governance. The problems include that controlling shareholders violate the interests of small and medium investors, small and medium shareholders are lack of protection mechanisms, the board of directors supervise the enterprises insufficiently and the government intervene in firms excessively. These issues make East Asian firms fall into a great dilemma.

After Asian financial crisis, the East Asian countries and regions have started to introspect and reform their corporate governance model, which is mainly from the following aspects.

4.1 Strengthen the protection of small and medium investors

The East Asian countries and regions are focusing on the protection of small and medium investors after the Asian financial crisis. The supervisors and growing ranks of foreign institutional investors in these regions play important roles in it. The small and medium shareholders in Japan and Korea have already started to defend their own rights. The courts have begun to implement their ruling on the governance gradually and open the door for further legislation. Some countries and regions also have tried the practice of proxy voting rights. For the dispersed shareholders, the rights to vote may be delegated to others in order to achieve the supervision of the enterprise.

4.2 Redefine the functions of government

After the outbreak of the Asian financial crisis, the East Asian countries and regions have begun to reconsider the role of government in the process of corporate governance and redefine the functions of government. The main means of the government involving in corporate governance is formulation and implementation of relevant laws and regulations, such as corporation law, accounting and insolvency law. The government has begun to reduce its intervention in company restructuring. For example, the Korean government reduces its support to large enterprise groups, amends the company’s “Bankruptcy Law” and redefines the rights of shareholders and directors (Shahid Yusuf, et al., 2004, pp.48-55).

4.3 Establish corporation control rights market

As mentioned above, the East Asian corporate governance is lack of external constraints and supervision. In the process of reforming, the East Asia establishes external supervision mechanisms, taking the market of corporation control rights as the core, which is similar with Britain and the United States. They mainly adopt the following methods: One is the independent audit system. The independent audit institution is used to release a true and accurate company financial information; The other is information disclosure system. The purpose of the information disclosure is to provide accurate and timely information for market in order to resolve serious information asymmetries, reduce transaction costs, improve business operation performance and protect the interests of investors.

5. Conclusion
The main conclusions of this paper are as followings: (1) The East Asian corporate governance model is gradually established based on institutional innovation of west corporate governance institution. (2) The institutional innovation of East Asian corporate governance model have played a positive role in maintaining stability of firms and reducing transaction costs and so on. (3) There are some deficiencies in institutional innovation of the East Asian corporate governance model, and these issues need to be reformed and improved.

This study is still preliminary: (1) There are no comprehensive summary of general characters of corporate governance institution in the United States, Britain, Germany and other developed countries. Thus the innovational analysis of the East Asian corporate governance model was lack of a overall comparable standard. (2) The study on mechanisms of institutional innovation in the East Asian corporate governance model is not enough. How do the East Asian countries and regions implement the institution study, localized the foreign theory the obstacles and surmount in the process of institutional innovation of corporate governance model? It remains to be further analyzed and discussed.

References:

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to strengthen the employee training to reduce turnover rate. All these measures can make the recruitment productive and reduce the recruitment risks.

References

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