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INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

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FRTL Financial Research & Trading Laboratory

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Contents

Editorial

The Reserve Bank of India has recently raised the issue of Indian corporates building enormous treasury. Treasury of some corporates is really big. However, that does not necessarily cause any alarm. There is a need for a serious study of the role of corporate treasury and its impact on financial markets. Similarly, Indian banks are not allowed to have trading account to trade on equity markets despite having reasonable exposure. There can be a debate on whether banks should be allowed to have trading accounts and thereby avoid paying hefty brokerage for every round trip trade.

The piece on FII sentiment index is an update of a similar paper published in the June 2013 issue of A₹tha. The updated version uses a different methodology and looks at more number of global and national proxies to identify the determinants of FII sentiment.

The second article focused on the recommendations of Mor Committee Report. Financial inclusion has attracted special attention of the RBI Committee in 2014 and after considering various options, the Mor Committee recommended establishment of a new set of banks (called the 'Payments Banks') under the Banking Regulation Act.

The author, in the third paper, deals with price efficiency in Gold future market in India. Empirical evidences show that the volatility of the markets have high correlation indicating volatility spillover possibility. It is expected that the volatility of global market is likely to transmit to Indian market as Indian market is predominantly a price taker. In 2013, volatility in Indian market increased while the same has declined in the global markets. This may be due to the imposition of restrictions on gold imports during 2013.

The fourth article is a note on cooperative banking and the author concluded that cooperative banking can be a healthy alternative to for-profit banking if it adheres to its cooperative values.

You may send your comments and feedback on this issue to ashok@iimcal.ac.in

Happy reading!

Ashok Banerjee

An update on FII sentiment index

Ashok Banerjee

Rimly Kar (Research Associate, IIM Calcutta)

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The June 2013 issue of Artha carried a piece showcasing our first attempt to develop a Foreign Institutional Investment (FII) Sentiment Index. Such an Index was developed on the basis of FII flows into the Indian equity and debt markets. We have been tracking, since June 2013, the performance of our Sentiment Index with the actual FII flows and observed that our model needs improvement as it captured only a few explanatory variables. We have therefore now modified the construction methodology of our index mainly drawing on the work of Wurgler and Baker.[1]

Our study analyzes the determinants of FII flows into India in a multivariate regression model using monthly data from April 2005 to June 2014.

Data Description

In this paper, we first try to look at the different global and domestic variables affecting FII flows. We attempt to analyze the effect of return, risk and inflation, which in the literature are considered to be the major determinants of FII. It is also true that FIIs look at a basket of countries while making their investment decisions and hence they mostly analyze cross-country variables in this respect. The monthly FII data for the time period of our study (April 2005 to June 2014) are collected from the website of SEBI. In the literature, researchers have used several alternative forms of independent explanatory variables. The data for explanatory variables in this study are collected from various databases such as Bloomberg and ISI Emerging Markets.

[1] Baker, M., Wurgler, J., 2006. Investor Sentiment and the Cross-Section of Stock Returns. THE JOURNAL OF FINANCE • VOL. LXI, NO. 4 • AUGUST 2006

Factors determining FII flows

We have considered several global and domestic variables for modeling purpose. We have grouped the variables under the following indicators:

- Money Market Indicator: Three-month commercial paper yield has been used to capture the money market sentiment.

- Bond Market: Here we have considered the spread for US Generic Government 5 year yield (USGG5YR) and US Generic Government 10 year yield (USGG10YR) with government bond yields of other countries like India (GIND5YR, GIND10YR), Hong Kong (HKGG5YR, HKGG10YR). Also, the CCIL (Clearing Corporation of India Ltd.) Sovereign Bonds Index have been considered.

- Equity Market: Stock market Index for countries like India (BSE SENSEX), Hong Kong (HANG SENG), China (MSCI CHINA), Brazil (IBOVESPA), the US (S&P 500), Argentina (MERVAL), and Mexico (MEXBOL) are considered for the analysis. As current returns can be a good predictor of future returns, we have also included the return of the above indices as potential explanatory variables.

- Currency Market: Currency yield spread for the US (USD) with currency yields of other countries like India (USDINR), China (USDCNY), Argentina (USDARS), Mexico (USDMXN), Brazil (USDBRL) and Hong Kong (USDHKD) are considered as proxies for the currency market.

- General Economic Conditions: Under this segment we have considered variables like GDP growth of India (at current prices), Bloomberg US financial condition Index, Inflation Index of India captured by the CPI, Industrial growth of India (Index of Industrial Production Base 2004-05), US Purchasing Managers Index and Balance of payment Index of India.

- Central Bank Activities (India): Repo and Reverse Repo Rate Indices are considered to capture the currency management policy of the Reserve Bank of India. Also, money supply indicators (M1 and M3) are taken into consideration.

Methodology

We have therefore used 38 proxies in total for constructing FII Sentiment Index. These proxies/explanatory variables capture the sentiment of various domestic and global macroeconomic and market indicators. Each sentiment proxy is likely to include a sentiment component as well as an idiosyncratic component.

We have used Principal components analysis (PCA) to isolate the common components in these variables. PCA is a variable-reduction technique and is used in situations where a

large number of proxies are considered. Its aim is to reduce a larger set of variables into a smaller set of 'artificial' variables, called 'principal components', which account for most of the variance in the original variables.

We try to fit two models.

MODEL 1: The first model consists of the proxies for the current time period t and their respective two period lags i.e. (t-1) and (t-2). We estimate the first principal component of the 38 proxies and their lags. This gives us a first-stage index with 114 loadings, one for each of the current and lagged proxies. Then we compute the correlation between the first-stage index and the current and lagged values of each of the proxies. Finally, SENTIMENT (at time period t) is defined as the first principal component of the correlation matrix of 38 variables—each respective proxy's lead or lag, whichever has higher correlation with the first-stage index.

$$(SENTIMENT)_t = B_1Z_{1i} + B_2Z_{2i} + \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + B_{38}Z_{38i}$$

Where B's are the slope coefficient

Z's are the proxies for sentiment

t= current time period

i= t if the first stage index has a higher correlation with the level value

i= t-1 if the first stage index has a higher correlation with the one period lag

i= t-2 if the first stage index has a higher correlation with the two period lag

MODEL 2: For the second model, we consider the proxies for the time period t and their respective one period lag i.e. only (t-1). Again, we estimate the first principal component of the 38 proxies and their lags. This gives us a first-stage index with 76 loadings, one for each of the current and lagged proxies. Then we compute the correlation between the first-stage index and the current and lagged values of each of the proxies. Finally, SENTIMENT (at time period t) is defined as the first principal component of the correlation matrix of 38 variables—each respective proxy's lead or lag, whichever has higher correlation with the first-stage index.

$$(SENTIMENT)_t = B_1Z_{1i} + B_2Z_{2i} + \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + B_{38}Z_{38i}$$

Where B's are the slope coefficient

Z's are the proxies for sentiment

t= current time period

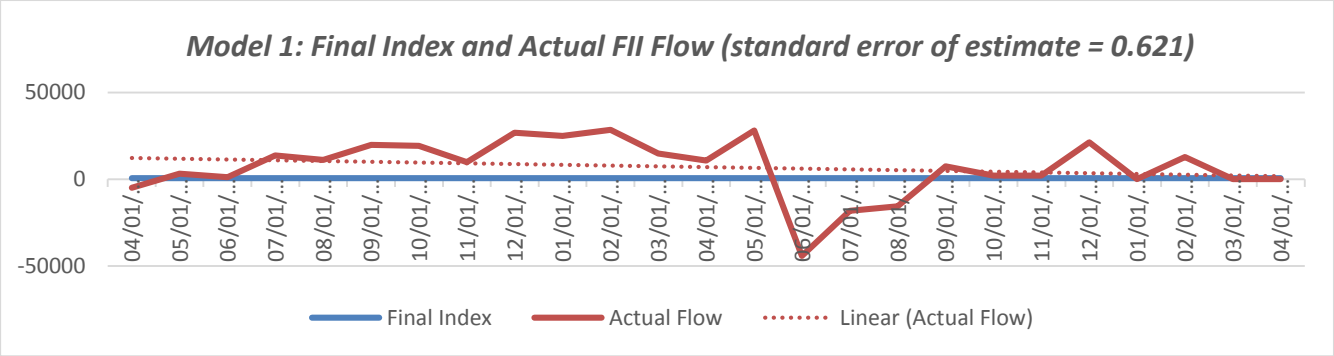
i= t if the first stage index has a higher correlation with the level value

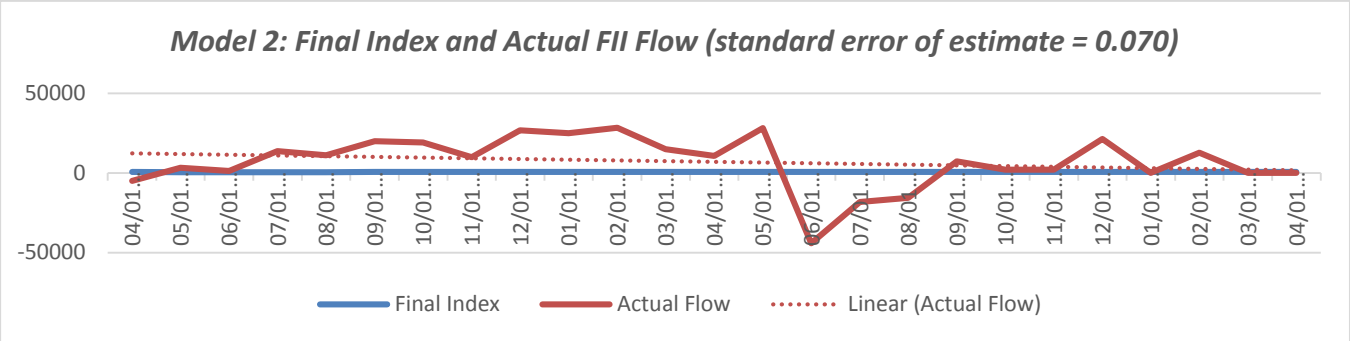
i= t-1 if the first stage index has a higher correlation with the one period lag

We then compare between both the models and consider the model which gives a better fit. The selected model is then used to predict the sentiment index for the forthcoming months.

Results

We produce below the performance of both the models based on the monthly data for the period April 2012-April 2014.





We find that model 2 performs better.

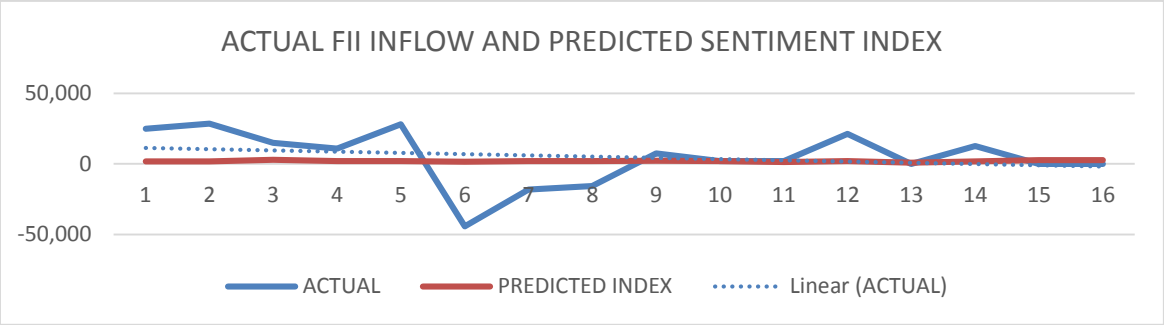
Prediction Results

We select Model 2 which considers the proxies for time period t and (t-1). Now we try to predict the FII investor sentiment for the forthcoming months with the help of model 2. We organize our analysis loosely around the following predictive lagged specifications:

$$(\text{FII Sentiment})_t = a + B_1 T1_{t-1} + B_2 T2_{t-1} + \ldots\ldots\ldots\ldots\ldots + B_{38} T5_{t-1} + U_{t-1}$$

Where t denotes time and T's are proxies for sentiment or the major determinants affecting FII. We try the above specification for the time period April 2005-December 2012 and try to

predict the FII values for January 2013 to April 2014. We find a correlation of around 0.30 between the actual net FII flows and the predicted FII index.



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Payment Banks: Will they take off towards Financial Inclusion?

Partha Ray

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In India under a state-owned nationalized banking system, while there has been tremendous expansion of commercial banking network, following the initiation of financial sector reform programme since the mid1990s, issues relating to financial inclusion have started coming to the fore.[2] The findings of the Committee on Financial Inclusion (Chairman: C Rangarajan), which submitted its report in January 2008 were startling in this regard. As per the Rangarajan committee report, out of a total of 89.3 million households, 45.9 million farmer households in the country (51.4%) do not access credit, either from institutional or non-institutional sources. Further, despite the vast network of bank branches, only 27% of total farm households are indebted to formal sources (of which one-third also borrow from informal sources). These are shocking numbers revealing lack of formal finance to Indians at large.

Payments Bank: Mor Committee Recommendation

While financial inclusion has been in the policy agenda over the last ten years or so, in recent past, the issue has attracted special attention of the RBI Committee on "Comprehensive Financial Services for Small Businesses and Low Income Households" (Chairman: Nachiket Mor), whose report was released in January 2014. After considering various options, the Mor Committee recommended, *inter-alia*, establishment of a new set of banks (called the 'Payments Banks') under the Banking Regulation Act with the following characteristics:

a) they will be restricted to holding a maximum balance of Rs. 50,000 per customer;

b) they will be required to meet the CRR and SLR requirements;

[2]Incidentally, financial Inclusion has emerged as a problem all across world. Even in the United States, it has been reported that in 2012, nearly one in four (28.3%) of all U.S. households conduct some or all of their financial transactions outside of the mainstream banking system; see, "Who Needs Banks? Number Of Americans without Bank Accounts Rises", *Forbes*, September 12, 2002, available at http://www.forbes.com/sites/halahtouryalai/2012/09/17/who-needs-banks-number-of-americans-without-bank-accounts-rises/

c) they will be required to deposit the balance proceeds in approved SLR securities with a duration of no more than three months and will not be permitted to assume any kind of credit risks;

d) the minimum entry capital requirement for them will be Rs. 50 crore compared to the Rs. 500 crore required for full-service scheduled commercial banks (SCBs);

e) they will be required to comply with all other RBI guidelines relevant for SCBs;

f) existing SCBs should be permitted to create a Payments Bank as a subsidiary.

Budget, 2014-15

The Finance Minister in his Budget speech of 2014-15 (July 10, 2014) endorsed this idea when he stated categorically:

> "After making suitable changes to current framework, a structure will be put in place for continuous authorization of universal banks in the private sector in the current financial year. RBI will create a framework for licensing small banks and other differentiated banks. Differentiated banks serving niche interests, local area banks, payment banks etc. are contemplated to meet credit and remittance needs of small businesses, unorganized sector, low income households, farmers and migrant work force" (Para 132; p 24).

Recent RBI Circular

Subsequently the RBI released the *Draft Guidelines for Licensing of "Payments Banks"* on July 17, 2014.[3] As per these guidelines, the existing non-bank Pre-paid Payment Instruments (PPI)[4] Issuers and other entities such as Non-Banking Finance Companies (NBFCs), corporate Business Correspondents (BCs), mobile telephone companies, super-market chains, companies, real sector cooperatives and public sector entities may apply to set up a Payments Bank. The activities of the Payments Bank were prescribed to be as follows:

a) Acceptance of demand deposits, initially restricted to holding a maximum balance of Rs. 1 lakh per customer (double the amount prescribed by the Mor committee);[5]
b) payments and remittance services through various channels including branches, BCs and mobile banking.
c) Issuance of PPIs as per instructions;
d) Internet banking;
e) functioning as BC of other banks.

[3] Available at http://rbi.org.in/scripts/bs_viewcontent.aspx?Id=2857

[4] The Prepaid instruments can be issued in various forms, such as, smart cards, magnetic stripe cards, internet accounts, online wallets, mobile accounts, mobile wallets, and paper vouchers.

[5] If the transactions in the accounts conform to the "small accounts" transactions, these will be subject to simplified KYC norms.

Interestingly, the payments banks are not allowed to undertake lending activities. Thus, in the asset side of its balance sheet, there will be the following items: (a) CRR balances with the RBI; (b) minimum cash in hand and balances with a scheduled commercial bank / RBI; and (c) investment in Government securities / Treasury bills with maturity up to one year that are recognized by RBI as eligible securities for maintenance of SLR.

Contrary to the Mor Committee recommendation of Rs. 50 crore, the minimum paid up voting equity capital of these Payments Bank as per the RBI circular of July 17, 2014 was prescribed to Rs. 100 crore. Besides, a payments bank needs to have a net worth of Rs 100 crore at all times. These banks are required to maintain a minimum capital adequacy ratio of 15 per cent of its risk weighted assets (RWA) on a continuous basis. However, "as Payments Banks are not expected to deal with sophisticated products, the capital adequacy ratio will be computed under simplified Basel I standards".

Out of the minimum capital requirement of Rs.100 crore for these payment banks, promoters would need to make an initial contribution of at least 40% of the equity capital with a five-year lock-in. While excess shareholding should be brought down to 40 per cent by the end of fifth year, to 30 per cent by the end of 10th year and to 26 per cent in 12 years from the date of commencement of business, foreign shareholding in these banks will be as per the existing FDI policy. These banks need to comply with the corporate governance guidelines, including 'fit and proper' criteria for Directors as issued by the RBI.

A Critique

How far will these payment banks take off to solve the problems of financial exclusion? Two comments are in order.

First, essentially the payment banks are narrow banks with no loan portfolio, and with all investment portfolios. Thus, while these banks will have no credit risks, they will have market risks and operational risks. This means their Treasury operations are going to be all-pervasive. Given the paucity of skill-set of the treasury operations in Indian commercial banks and their compensation structure, it is indeed a difficult task.

Second, the requirement of Rs 100 crore is really large for a niche bank aiming at financial inclusion. There is already a view in the financial circle that that the move towards establishment of payment banks is positive for micro finance and telecom companies but it is unlikely to attract large NBFCs. Besides, creating a second (possibly inferior) tier of banking without any loan facilities may work on the issue of financial exclusion, at best, partially.

But, all these comments are speculative in nature. It remains to be seen how much interest will it generate among the banking community and how far will these banks be successful? Watch this space in future.

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Price Efficiency in Commodities Future Market – A case study for Gold futures in India

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Manoj Dalvi

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Commodities play a very important role in macroeconomic environment of an economy. Shortage of commodities can lead to wide price fluctuations and higher level of volatility leading to higher risk premia for investors. Excess availability of the same would lead to depressing price situation forcing producers out of business at times. Commodities are typically traded in various market layers starting with large wholesale trading between producers and investors and ending with retail small quantity trading between retailers and end users. A commodity market generally attracts large number of middlemen and financing agents who take possession of physical assets and store them at warehouses to sell them at appropriate time to make sufficient profit to stay in business. Depending on the layers of middlemen in the market structure, the end users' price deviates from the producers' price. The spot commodities market deals in physical form of commodities movement. Price of commodities which are perishable in nature (like agricultural products) behave little differently than non-perishable commodities like metals and energy commodities. However, commodities futures markets have been able to bring stability to the spot markets. The theory of storage and the normal backwardation theory explain the relationship between the spot and futures prices in commodity markets.

Spot and Futures markets are linked in terms of their price movements. Higher liquidity in these markets make price discovery more efficient. Discovery of efficient price is a predominant function of the futures market as the market is likely to be used by traders, producers, marketing agents and processors. Numerous studies have been conducted to show the futures market reacts faster to new information vis-à-vis spot market as it is cheaper to exercise a view in the futures market than in the physical spot market.

Most of earlier studies reveal that futures markets play a very critical role in efficient price discovery. The futures market is linked to the spot market through a cost of carry component which will not only take care of the cost of inventory holding but also any convenient yield

arising out of such physical holdings. The prices in the futures and spot markets are systematically related both in the short and long run and any deviation should be rationally explained. The presence of an equilibrium relation binding together the two prices of the futures and spot markets is the main theme behind efficient price formation. As a large number arbitragers exist in the system and they can fund their position through borrowing mechanism by paying appropriate cost, any disparity in price between spot and futures market is likely to be exploited by these arbitragers. Efficient price discovery mechanism through the above equilibrium process leads to better decision making that ultimately results in an optimal allocation of physical resources.

Futures on commodities are widely traded in global markets and in India, Government allowed trading in commodity futures in 2003. Among the commodities futures contracts traded in India, Gold accounts for the largest share of contracts. The trading on gold is also concentrated in one Exchange[6]. Spot gold market is typically across all geographical locations in India but the price fixation at either Mumbai or Ahmedabad is accepted among the traders for delivery. Gold, being a commodity, attracts State level taxes along, if any. Hence, traders prefer to take delivery of physical gold in a center where the tax is relatively lower. Ahmedabad as a delivery center for gold has been growing in importance in recent years and it is well accepted among the traders. The Indian Commodity Exchanges typically use spot price for delivery at Ahmedabad as the settlement price for their futures contract in Gold.

The price and production behaviour of gold differs from most other commodities. During the recent financial crisis, the gold price increased by 6% while many key mineral prices fell and equities dropped by around 40%. The unique and diverse drivers of gold demand and supply do not correlate highly with changes in other financial assets (WGC, 2009). Efficient price discovery mechanism is an important issue in a competitive market. Price behavior in the physical and financial markets determine how the agents of the market like producers, speculators, financiers and users would behave. If price discovery is inefficient, liquidity becomes the biggest challenge for all. This paper looks at the mechanism of efficient price discovery in Gold spot and Futures market and their interlinkages.

Indian Gold Market

More than 95% of gold imported for the domestic market is in the form of small cast bars weighing 10 tolas (3.75 oz), widely known as TT bars or biscuits. Most imported TT bars are produced by 8 major gold refiners in Switzerland, South Africa, United Kingdom and Australia. Imported gold is distributed nationwide through secondary and lower tier bullion dealers that fall below the primary tier of bank and PSU importers. The most important dealers are located in cities where the State sales tax is low. Notably, Ahmedabad, Jaipur, Mumbai and Gurgaon.

[6] Multi Commodity Exchange (MCX) accounts for lion's share in Commodity Futures contracts traded in India.

Historically India is one of the largest importers of gold in the world. Gold is held as a family jewel for most families in the country and very rarely families sell gold for pecuniary purposes. Before early nineties, gold market is India attracted lot of parallel transaction as the imports were restricted combined with high import duties. The hawala market operated leading to increased black market transactions in gold. However, financial sector reforms process in nineties brought much needed reforms to the gold market and market was freed up from high import duties and restriction on imports. The international price and domestic market price of gold almost synchronized till Government introduced high import duties on gold imports in 2013. The Government hiked import duty in August'13 on refined gold bars for a third time in eight months to 10 per cent from the earlier 8 per cent in order to curb the demand and restricts its impact on Current Account Deficit (CAD) and exchange rate.

The gold import has been rising unabatedly for last few years and such large import of gold has become one of the major source of our high trade deficit. The CAD has deteriorated significantly in recent times due to large gold imports. This resulted in depreciation of the Indian currency and resulted in reduction of the foreign exchange reserves. This high current account deficit and falling Indian Rupee in 2013 forced RBI and the Government to introduce restrictions on gold imports as well as introducing duties on import of Gold. However, the differential pricing between international and domestic prices has resulted in increasing unauthorized market taking shape through hawala route. The aggregate demand for gold in India is influenced by many social, economic and cultural factors. Gold is a chosen investment for many as it is considered a hedge against inflation. Indian has been passing through high inflationary situation for last few years and this might have contributed to such high demand for gold. Further, return on alternate assets have not been lucrative enough for investors to diversify into those assets. The performance of gold against other comparable financial assets in recent years is another possible reason for the shift towards investment in gold in India. Rising global gold prices in recent years did not affect the domestic demand of the gold in India implying that investment in gold is becoming price inelastic. International gold prices have increased exponentially in recent years and domestic gold prices have moved in tandem with international gold prices in recent years. In recent years, the gold loan market in India has grown rapidly. Large number of Non-Banking Financial Companies are involved in gold loan business in India who source funds from banking sector. Till recently, banks were very active in providing gold loans to customers.

Global Gold Supply and India's Demand for Gold[7]				
Year	Global Gold Supply $ (Tonnes)	Gold Demand from India @ (Tonnes)	Growth of Global Gold Supply (%)	Growth of Gold Demand from India (%)
1999	4206	486		
2000	3704	462	-11.9	-4.9
2001	3764	471	1.6	2
2002	3667	467	-2.6	-0.9
2003	3953	367	7.8	-21.3
2004	3426	537	-13.3	46.1
2005	4034	792	17.7	47.5
2006	3559	707	-11.8	-10.7
2007	3554	716	-0.1	1.3
2008	3657	679	2.9	-5.1
2009	4146	743	13.4	9.4
2010	4274	871	3.1	17.2
2011	4030	975	-5.7	11.9
2012	4130	1079	2.5	10.7
$ - calendar year, @ - Financial Year				

From the above Table, few interesting points may be derived. If we consider the entire period to map the changing demand for gold in India against the change in global gold supply, we find very little relationship[8]. The relationship is interesting if we divide the period into two parts - (a) 2000-2004 and (b) 2005-2012. During the first phase, we find a negative

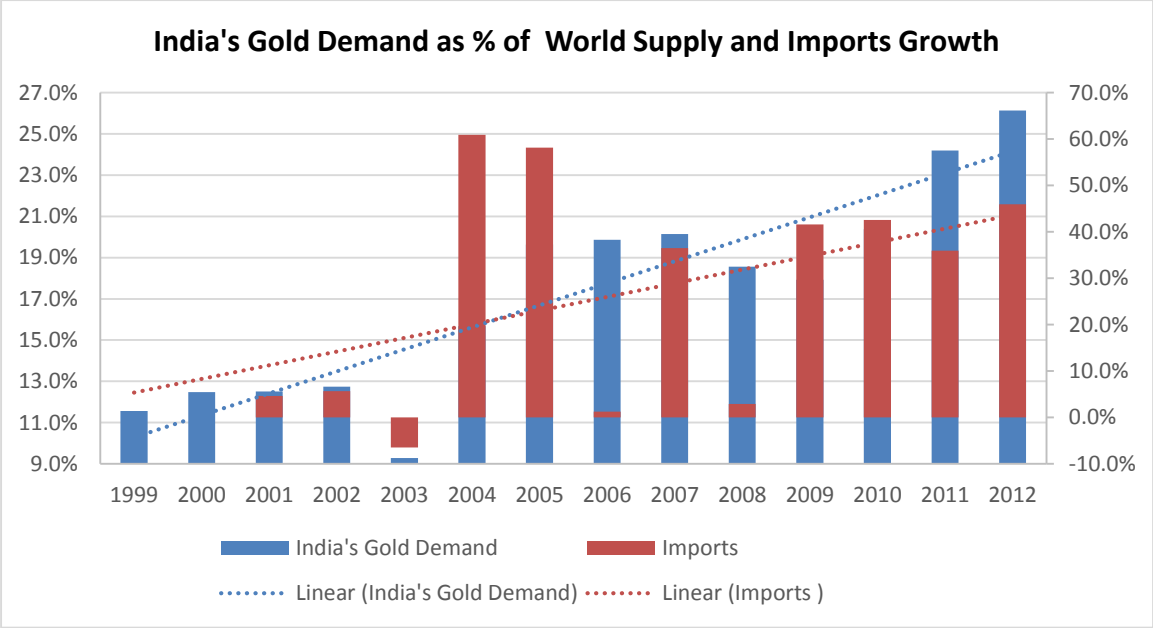
[7] Source: *World Gold Council and Estimations from DGCI&S Data*

[8] Correlation coefficient is 0.15 but insignificant.

relationship between change in world supply of gold and change in Indian demand for gold[9] while during the second phase the relationship is positive and significant at 5% level[10].

Simple Descriptive Statistics (%)					
Variable	N	Mean	Std Dev	Minimum	Maximum
World Supply	13	0.28	9.47	-13.3	17.7
Indian Demand	13	7.94	20.06	-21.3	47.5

Indian's demand for gold has been rising steadily over the years and as of 2012, it has surpassed one-fourth of world supply of gold. However, in spite of this large consumption India is more of a price taker than a price setter as domestic prices typically synchronize with global gold prices set at London after adjusting for duties.



Investment in gold has been traditionally used in India as a hedge against inflation. Hence it is expected to have a very high correlation with average WPI growth. As Indian consumers are witnessing high level of inflationary pressure since 2003-04, the demand for gold started rising. The change in domestic gold prices fairly provided a coverage for high inflation measured in terms of WPI.

Annualized Monthly Average Growth in Gold Price and WPI		
Growth	Avg. WPI Growth (%)	Avg. Gold Price Growth (%)

[9] Correlation coefficient is -0.71 but not statistically significant and R-sq is 0.50.
[10] Correlation coefficient is 0.74 and statistically significant at 5% level with R-sq of 0.54.

2001-02	3.64	2.44
2002-03	3.38	16.51
2003-04	5.48	7.24
2004-05	6.51	7.63
2005-06	4.44	12.17
2006-07	6.59	35.68
2007-08	4.74	8.3
2008-09	8.09	29.83
2009-10	3.86	22.69
2010-11	9.57	22.08
2011-12	8.96	33.54

Further, demand for gold has been price inelastic. Though there is a negative relationship between the change in gold price and the change in gold demand, the same is statistically insignificant. The yearly change in gold demand has also a positive relationship with the WPI but the same is not statistically significant. However, WPI and gold price changes have positive correlation but statistically significant only at 10% level. As we find demand for gold is price inelastic, imports have been increasing at a rapid pace (till imposition of duties on import of gold in 2013 and further restriction imposed by RBI of gold import funding). The large gold imports have led substantial increase in CAD and also impacted the exchange rate.

Simple Descriptive Statistics (2001-02 to 2011-12)					
Variables	N	Mean	Std Dev	Minimum	Maximum
WPI	11	5.93	2.18	3.38	9.57
Annual Gold Price Change	11	18.01	11.53	2.44	35.68
Annual Gold Demand Change[11]	11	9.65	21.44	-21.3	47.5
Annual Imports Change[12]	11	29.53	24.18	-6.44	60.93

[11] Quantity
[12] Value

Gold imports stood at `269563crores as of 2011-12. As domestic production of gold has been at insignificant level for a long time, the consumption demand is met entirely through imports. Gold investment returns has been above 18% on an average in domestic market while since 2000, the international gold prices have grown at compound annual growth rate of 16.3%. Imports in terms of value have grown at a rate of about 30% during 10 years. As expected, gold imports have a very strong correlation with the demand for gold and also has a reasonably good correlation with WPI[13]. Gold demand and gold price has an expected negative relationship but it was not statistically significant indicating inelastic nature of the demand.

India has been exporting a certain portion of its gold imports in the form of re-exports of gold jewelry as global demand for such items has been picking up. However, such re-exports have steadily fallen fall 41% in 2008-09 to 29.2% in 2011-12. A higher percentage of gold imports are being used for meeting domestic demand. Hence, increasing domestic consumption of gold import is clearly a concern for external sector sustainability.

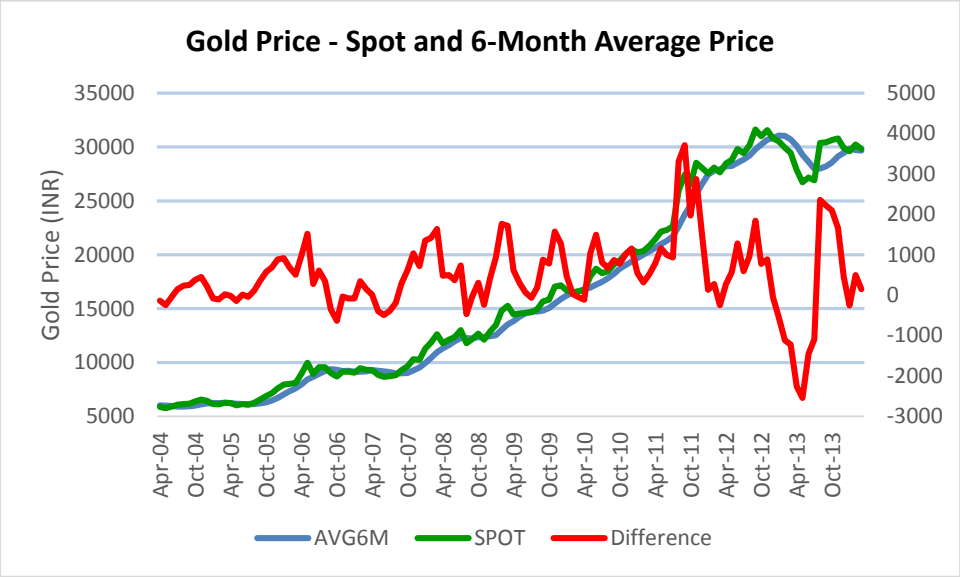
Table - Pearson Correlation Coefficients, N = 11 (2001-02 to 2011-12)

Prob > |r| under H0: Rho=0

	WPI	Gold Price Change	Gold Demand Change	Gold Imports
WPI	1	0.59	0.31	0.57
		0.06	0.35	0.07
Gold Price Change	0.59	1	-0.16	0.29
	0.06		0.63	0.38
Gold Demand Change	0.31	-0.16	1	0.89
	0.35	0.63		0.00
Gold Imports	0.57	0.29	0.89	1
	0.07	0.38	0.00	

Typically frequency of monthly average gold price remained above the previous six months' average price for most part of the period. This implies building up of positive expectations by gold investors as the present spot price is above the last 6-month's average price.

[13] Significant at 10%

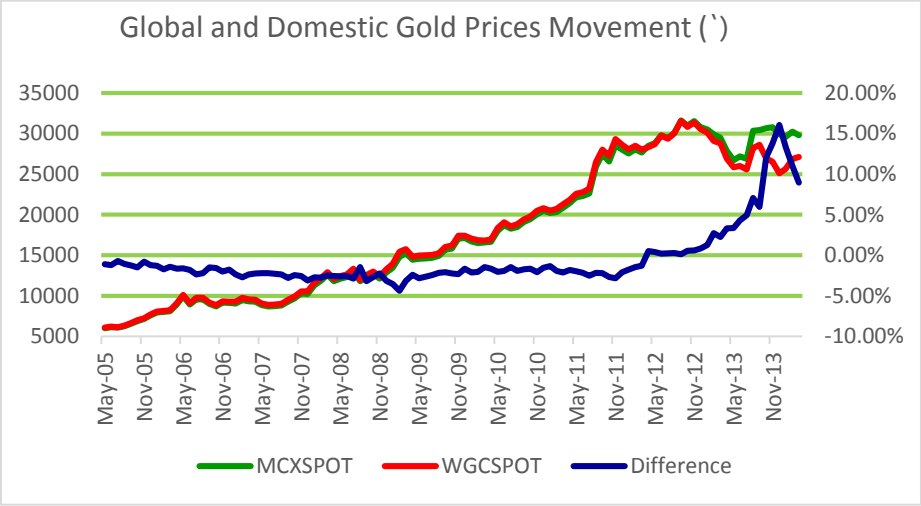


Investment is gold has been significantly rising over years as investors use the same increasing as a hedge against inflation in India. The investment has paid off handsomely vis-à-vis other financial assets. The gold imports appear to be price inelastic in India. India has a tradition and social customs warranting purchase of gold for specific occasions irrespective of the price.

Indian Spot Gold Price Dissemination System

Spot gold price for India is obtained typically for ex-Ahmedabad delivery or ex-Mumbai delivery. The ex-Ahmedabad delivery has been more popular among traders and the largest commodity futures exchange in terms of volume of contracts traded uses the said price for settlement purpose. The spot price used by the leading commodities futures exchange for settlement is arrived at by way of polling the rates from group of jewelers and processors[14]. Spot gold price for India is also disseminated by World Gold council. However, the said price does not take into account the import duties introduced in 2013 by the Government to ward off the pressure on Current Account Deficit. Hence the global gold price and Indian domestic gold price have diverged in recent times and due to import restrictions and duties, the domestic gold price trades at a premium over the global gold price. Domestic gold prices have been trading at least 6-7% higher than global prices in Feb'14. The premia is likely to come down as the currency has been appreciating and demand for gold has decelerated because of many regulatory directives. To start with the relaxation process, RBI eased gold import norms by trading houses as well as allowing banks to give Gold Metal Loans (GML) to domestic jewellery manufacturers out of the eligible domestic import quota of 80% to the extent of GML outstanding in their books as on March 31, 2013.

[14] The Exchange has not provided any clarity on the process of polling, the names of entities polled and the process and methodology of arriving at the final price for settlement of contracts. Higher level of transparency in fixing spot price is likely to improve the quality of the spot price used for settlement. Exchange has also not provided historical delivery statistics in their website to understand how much contracts are settled for physical delivery.



Physical Gold was also traded in National Spot Exchange (NSEL)[15] using e-contracts but as it was found later, the contracts were paired ones for borrowing and lending money and most of the warehouses did not have physical gold in their vaults to support the transactions. It was later found out that only a few lenders and borrowers were misusing the NSEL trading platform for executing borrowing and lending activities without any significant participation from retail investors. Large amount of artificial trading activities were entered by Indian Bullion Market Association (IBMA), a subsidiary of the exchange.

Due to absence of a functional, well regulated and transparent spot trading environment, most trades in physical gold happens amongst second tier dealers and jewelry processors play a very important role in most of these deals. Gold futures trading started in multiple exchanges in India in 2003 and trades on these future exchanges are concentrated in near month contracts. Many studies have found the bi-directional causality between gold futures and gold spot prices.

Table - Descriptive Statistics - Gold and Gold Futures (India and Global) - May'05 to Mar'14

	MCX SPOT (`)	MCX FUTURES (`)	CME FUTURES ($)	LONDON SPOT ($)
Mean	17773	17780	1084	1082
Standard Dev	8460	8438	409	410
Minimum	6036	6039	423	423
Maximum	31626	31650	1765	1766
Median	15837	15858	1045	1043
Months	107	107	107	107

[15] Criminal investigation by regulatory bodies have been initiated against NSEL in 2013 and estimated loss for lenders is about `5600crores (1crore = 10million).

The descriptive statistics clearly points out that gold spot and futures move in tandem like any other spot and future relationship. The prices have very high correlation – CME and London Spot have a near 100% co-relation in their movements while MCX Futures and Spot have very marginally lower correlation than the above. However, London Spot and Indian Spot prices have about 94% correlation – same as the correlation between CME futures and MCX Futures. This high correlation is intuitively expected as gold is an international commodity and Indian market is more of a price taker though it has a substantial part in total gold consumption and demand and produces almost negligible amount.

Table - : Pearson Correlation Coefficients, N = 107

Prob > |r| under H0: Rho=0

	MCX SPOT	MCX FUTURES	CME FUTURES	LONDON SPOT
MCX SPOT	1	0.9997	0.93567	0.93627
		<.0001	<.0001	<.0001
MCX FUTURES	0.9997	1	0.94061	0.94118
	<.0001		<.0001	<.0001
CME FUTURES	0.93567	0.94061	1	0.99998
	<.0001	<.0001		<.0001
LONDON SPOT	0.93627	0.94118	0.99998	1
	<.0001	<.0001	<.0001	

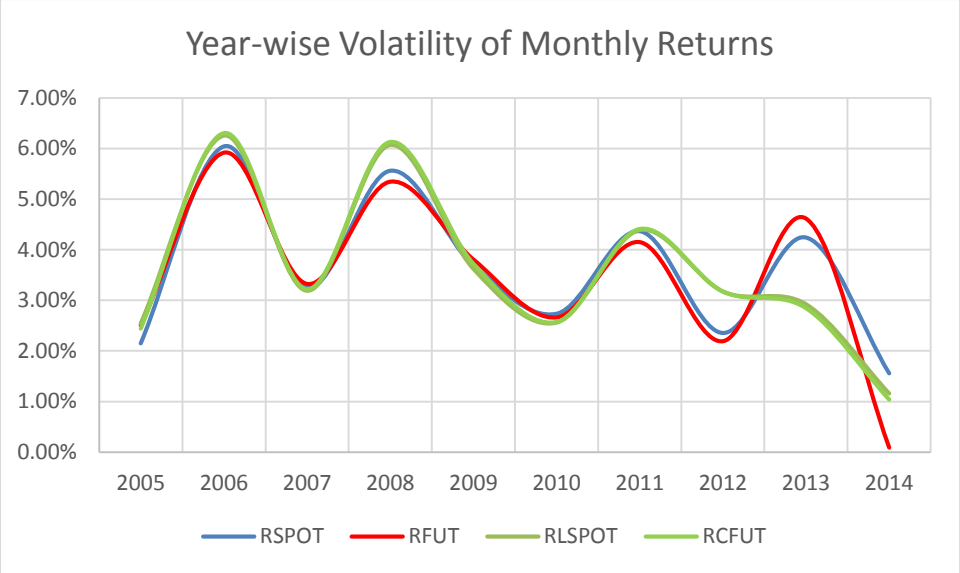
Monthly price changes (logarithmic returns) also show that Indian market (both Futures and Spot) has given better returns with lower risk vis-à-vis global market represented by CME futures and London spot prices. Indian market has provided an annual return of about 18% with an annual volatility of 14.5% while global market (measured in term CME Futures and London spot) has provided a return of 13% with a volatility of 15%. Indian market provided an arbitrage opportunity to investors.

Table - : Simple Statistics (Monthly Log Returns)

Variable	N	Mean	Std Dev	Minimum	Maximum
MCX SPOT	106	1.507%	4.189%	-10.750%	13.614%

MCX FUTURES	106	1.505%	4.176%	-10.359%	13.781%
LONDON SPOT	106	1.085%	4.413%	-12.037%	10.996%
CME FUTURES	106	1.088%	4.433%	-12.269%	10.839%

The volatility of the markets have high correlation indicating volatility spillover possibility. It is expected that the volatility of global market is likely to transmit to Indian market as Indian market is predominantly a price taker. In 2013, volatility in Indian market increased while the same has declined in the global markets. This may be due to the imposition of restrictions on gold imports during 2013.



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A Note on Cooperatives for Banking

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Ever since the financial crisis, people have been running down bankers. This is because bankers are the most visible actor, familiar to them. The actual cause of the financial crisis may be due to shadow banking or the growth of a vast multitude of unregulated money market instruments such as collateralized debt obligations and credit default swaps. To some extent, therefore, regulators share the blame. However, without the bankers' participation in shadow banking, perhaps the crisis could have been averted. Bankers themselves created these instruments in search for greater profit and appropriate risk targeting to overcome market imperfections. Perhaps, the early experiments became too big too fast for them to deal with.

Some bankers are looking for new opportunities to get out of a tarnished industry. One avenue for escape seems to be cooperative banks who seemed to be less inclined to take such risks. There is a large literature on the benefits of cooperation versus competition captured in the saying "Unity is strength". This is especially true in crisis where we share a common fate and where there is a need to act, and group identities become strong (Winsborough, 2011). We find that customers search for strong financial institutions in times of crisis and they move from banks to credit unions (Samaad, 2012). Recent research shows that competition produces testosterone which is associated with social dominance while cooperation produces oxytocin, which is associated with trust (Muñoz, 2013).

But can cooperatives be successful in the financial world? Here are a few cases which are often pointed out in favor of cooperative based finance in general and banking in particular.

Cooperative banking probably started in Germany with the Raiffeisen model in the mid-19th century. They permitted providing long term loans by overcoming information symmetry through local knowledge and contacts (Périlleux, 2013). Today, cooperative banking is big in Europe. In France, 60% of corporates are clients of French cooperative banks such as the *Banque Populaire, Caissee d'Epargne, Crédit Mutuel, Crédit Coopératif and Crédit Agricole*.

Probably the biggest Cooperative group in the world is Mondragón Cooperative Group. It stated as an experiment in the Basque region. Thereafter it spread all over the world (Errasti

et al., 2003). Today, it has over 83,000 employees, and 270 businesses which generated sales of 13.7 billion euros for the year 2011. The Mondragón Cooperative Group consists of three divisions: banking, retail, and industrial. At the same time the international expansion has been associated by acquisitions. This rapid growth has raised questions on mission drift and degeneration of the cooperative (Bakaikoa et al., 2004, Errasti et al., 2003).

The banks in both the above cited models (France, Spain) are mainstream banks subject to banking regulations. However, there are instances of shadow banking taking place through cooperatives.

In France, the biggest non-bank cooperative works with many employers to finance the lunch of their 1.2 million employees. Essentially, instead of employers providing lunch, they share the lunch costs with their employees by paying an agreed amount. A matching amount is deducted from the employee's salary and the combined value is given to the employee in the form of a check which he can use to pay at most restaurants. The cooperative which sells the scheme to the restaurants and to employers is called Cheque Déjeuner (or lunch check). This cooperative which started in 1964 in France is now present in 12 countries, mostly in the EU, but also in Turkey, Morocco and Mexico. In a way, it is taking deposits, a typical banking function, but it is not subject to banking regulations.

Of course, shadow banking is far more prevalent in emerging countries owing to the sheer absence of banking. Microfinance has been a rapidly growing field all over the world and, today, even regulated banks are swiftly entering this field. For-profit institutions such as banks and non-bank financial institutions today make up about two-thirds of the market. The rest is shared between NGOs and savings and credit cooperatives. In many countries, NBFIs and NGOs are not allowed to take deposits and hence the NBFI and NGO models are over-leveraged. Their financial stress is passed on the customer because they harass her to get money back. However, savings and credit cooperatives are usually more healthy operations since the institution has a two-way relationship with the customer: she is both a depositor and a borrower. Most of microfinance in West Africa is done through savings and credit cooperatives (Ouédraogo and Gentil, 2008). The microfinance history of Togo shows that these grassroot savings and credit cooperatives saved the micro and SME segment during the decades when Togo was subjected to an international boycott and embargo (Ashta et al., 2010). While there is some attempt to regulate these savings and credit cooperatives (such as the PARMEC law), the regulators realize that they cannot impose as stringent rules as for banks.

Therefore, cooperatives are present in both banking and shadow banking and, to the extent they are filling up for the absence of banks but without regulation, they are a source of additional risk beyond that assumed by regulated cooperative banking. Such risks would multiply if any one of these cooperatives became too big. In the last few decades, we have been watching the merger of many of these cooperatives. A reading of these mergers reminds one of the external acquisitions for growth necessary for the continuing survival of Worldcom and other catastrophes. There is no reason why cooperatives cannot be badly managed, and it is evident that they can easily grow astray if they try to copy the model of

high risk-high profit banks which need to experiment with volatile instruments to increase their returns.

Is big bad? Bigger players may wreck greater havoc. The Rochdale Society, one of the earliest experiments in cooperatives in the 1840s, fawned many cooperatives either directly or indirectly, including the Cooperative Group Limited. The Cooperative Group Limited in Britain has sales and other income of over £ 12 billion to over 7 million members. Its businesses include food, travel, banking, funerals and many other businesses. It has a profit of £ 180 million pounds, just 1.5% margin on sales. This is about 27 pounds per member. While customer satisfaction with cooperative banks seems to be high in the UK, the rating agencies have been downgrading the Cooperative Group's bank because of inadequate capital. This comes from having absorbed an over-leveraged cooperative bank a few years ago. A lack of due diligence means one bad apple can spoil the barrel. Mergers and acquisitions often lead to poor returns, and they often hide the fact that one, perhaps both the firms, need to merge to hide past failures, including the failure to generate internal growth, a mantra which justifies high salaries. This is exactly what happened to the Cooperative Group and the failure may be one of poor human judgment and governance.

This brings us to a second example from the same group. The CEO of the Cooperative Group Limited may earn over a million pounds a year, while other top executives earn closer to £360,000 per year. The recent scandal of a top executive of the Cooperative Group buying crack is similar to the Mayor of Toronto buying crack. Therefore, at the least we can say that top executives and politicians are as human as anyone else. Should they therefore earn thirty to seventy times the minimum wage? Or should there be a ceiling to reflect that they are imposing risks, which greater potential downsides than those of people earning less because the image of the co-operator is at stake.

These governance problems are, of course, common to all cooperatives, not merely to cooperative banks. Within the Mondragón cooperative Group, which we mentioned above, there are cases of similar bad adventures through mergers. Since June 2005, Fagor Group is one of 270 entities of the Spanish Mondragon Cooperative Group. By acquiring the Brandt Group in 2005, Fagor hoped to consolidate a market. The merger allowed it to become the fifth entity on the European market. Fagor Group became the number 1 appliance manufacturer in France (14.5% market share) and No. 2 in Spain in 2011 with brands like Fabor, Brandt, de Dietrich, Sauter, Ocean and others. It now has nearly 6,641 employees and 14 production sites in six countries (Spain, France , Italy, Morocco , Poland and China) contributing to a turnover of 1.3 billion euros in 2011. Today, Fagor-Brandt is on the brinks of bankruptcy. Very little financial information is available on its website. It seems that Mondragón has been subsidizing Fagor for years and it can no longer afford to continue to do so. Figures north of 300 million Euros have been put forward as estimates of subsidies. One would expect that Mondragón, which includes a banking group, would have managed things better. Is the problem hubris? We know that most mergers and acquisitions do not succeed. Did Fagor's CEO, Pablo Mongelos, have too much hubris when he took over Brandt from Elco, an Israeli company for about 165 million Euros? Of was the takeover a

desperate attempt for an already ailing Fagor? It suffices us to conclude that behavioral and governance issues are as relevant for cooperatives as for other legal forms.

A modest conclusion is that cooperative banking can be a healthy alternative to for-profit banking if it adheres to its cooperative values. It is certainly workable and has grass-root stakeholder control. However, small remains beautiful, because as the cooperatives grow, it requires a lot of effort to retain the values of cooperation amongst the employees and directors. To the extent that these cooperatives are involved in shadow banking activities, regulators should be vigilant and propose that larger cooperatives take approval from banking authorities.

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