Our Vision

The Centre for Analytical Finance (CAF) at the Indian School of Business (ISB) in Hyderabad, India, will conduct research on issues in emerging markets finance, bring together world leaders in academics, practice and regulation of finance, become the premier finance research centre in the Asia-Pacific region, and achieve global standing in the foreseeable future.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.R. Rao, Executive Director’s Message</td>
<td>01</td>
</tr>
<tr>
<td>Krishna Ramaswamy, Summer Research Conference Co-chair’s Message</td>
<td>02</td>
</tr>
<tr>
<td>Krishnamurthy Subramanian, Summer Research Conference Co-chair’s Message</td>
<td>03</td>
</tr>
<tr>
<td>Research</td>
<td>05</td>
</tr>
<tr>
<td>Conference</td>
<td>11</td>
</tr>
<tr>
<td>Distinguished Visitors</td>
<td>12</td>
</tr>
<tr>
<td>Training &amp; Databases</td>
<td>13</td>
</tr>
<tr>
<td>People &amp; Supporters</td>
<td>15</td>
</tr>
<tr>
<td>CAF History</td>
<td>16</td>
</tr>
</tbody>
</table>
Dear Colleagues,

The Centre for Analytical Finance (CAF) at the Indian School of Business (ISB) represents ISB’s guiding principle that excellence in management education comes through extensive high-quality research. Research with a focus on topics related to emerging economies has remained our core activity. It reinforces, and in turn is reinforced by, our other major activities which revolve around the core. The other activities include research and policy conferences, policy initiatives guided by our own research findings, and training next generation researchers. We are doing original research, supported by extensive data analysis, in a host of important emerging markets topics, such as how to improve access to finance for SMEs and whether improved access to banking services in a country reduces economic inequality in the population.

In our short history since CAF was founded in 2004, we have remained true to the ISB's original vision of a centre of excellence. We have also made significant strides in doing research in emerging capital markets. CAF research papers are invited for presentations all over the world. They are almost always top downloads in their respective fields at Social Science Research Network (SSRN). Our flagship annual research conference, Summer Research Conference in Finance, is regarded internationally as a premier finance research conference. Our annual research conference on emerging markets, organised jointly with our partner institutions, is also thriving. The fresh graduates from various Indian universities that we hire and initiate into research regularly get admission to top-tier PhD programmes in the world following a period of research apprenticeship with us. In the course of our progress, we have formed collaborations and partnerships with scholars based abroad, important think-tanks and special financial institutions, such as the National Stock Exchange (NSE) of India. Now we are getting more recognition and more visibility across the world for our work.

However, a lot remains to be done. Our future holds exciting opportunities as well as formidable challenges. We want to be the world-wide hub of research in emerging capital markets. We want to form more partnerships and collaborations with the leading think tanks and finance research centres in the world, and have regular exchanges of ideas, researchers and resources, such as special data. We also want to have more industry collaborations and engage in joint research work. Finally, we need to work harder to reach out to the regulatory and policy-making bodies, such as the Securities and Exchange Board of India (SEBI) and the Reserve Bank of India, and take the regulatory and policy implications of our research to them.

As the scope of our activities increases substantially, we will encounter many challenges. However, if the past has been any indication, the future will be on our side.

Sincerely,

M.R. Rao
Executive Director,
Centre for Analytical Finance, Indian School of Business
Dear Colleagues,

For all of us, faculty and administration, the growth of the Finance Area at the Indian School of Business depends to a large extent on the growth and success of the Centre for Analytical Finance and its flagship research conference. The Conference has been a great success, judging by the quality of the researchers it has attracted each year: an annual reminder of its rapidly rising importance among the leading global research symposia is seen by those of us who view all the submissions and make the difficult selection decisions.

None of this would have been possible without the active support of the ISB resident faculty, the past and current Centre Director, and the Deans. In the Indian context, such a spectacular rise of an independent, research-driven educational institution—one that is well on its way to taking its place among the leading management schools in the world—would not have been possible without a strong Economics and Finance Area. The Centre for Analytical Finance has played a pivotal role in this rapid rise, by assembling a team of resident researchers, by gathering and maintaining financial data, and by disseminating research on matters of economic policy and public interest in a dynamic and growing economy. We hope that those of you who attend this year’s conference will gather information on the many research initiatives and data projects in the Centre—and make ISB a destination and a source for your ongoing research. We hope in the future to expand our conferences to include other research areas within finance and economics.

This year’s conference—following on stellar conferences over the last nine years—is special for ISB. We have had many accomplished researchers from the field of finance attend in the past, and we are very grateful indeed that many could make it back for this anniversary.

We welcome you to what I know will be a very successful conference.

Sincerely,

Krishna Ramaswamy
Co-chair, Summer Research Conference 2013.
Dear Colleagues,

The Centre for Analytical Finance (CAF) manifests a key element of ISB’s vision, where centres of excellence support and enhance the research activities of affiliated faculty members. Given its mission to support finance and emerging market research, CAF is an invaluable resource to the faculty undertaking research in these areas. The distinctive capabilities of CAF lie in its: i) high quality researchers, who are recruited from elite schools all over India; and ii) the unique datasets on emerging markets that CAF has been able to put together in a short span of time.

As we all recognise, top quality research is facilitated by engaging discussions and fruitful collaborations. Keeping this in mind, the Summer Research Conference provides an outlet for finance researchers across the globe to present and discuss their cutting edge research. As a co-chair of the conference organising committee, I am happy to inform you that over the years the conference has grown in stature to be one of the leading academic conferences in finance across the world. As you will read in the subsequent pages, about 30% of the papers presented in the conference have been accepted in the top finance and economics journals. This acceptance rate is second only to that of the Utah Winter Finance conference and is higher than the acceptance rates of papers presented at the American Finance Association and Western Finance Association annual meetings. The data thus tell their own story: the CAF conference is comparable in quality to any other leading finance conference across the globe.

This is the tenth successful year of the conference. Maintaining the trends set in earlier years, we received a large number of high quality submissions. About 100 papers cleared the first round of screening and were sent to the programme committee for review. To accommodate the increased number of submissions sent for review to the programme committee, we increased the number of members in the programme committee from 26 to 37. In the coming years, we will continue our efforts to take this conference to further heights.

I extend a warm welcome to all of you to the tenth Summer Research Conference.

Sincerely,

Krishnamurthy Subramanian
Co-chair,
Summer Research Conference 2013.
Current activities

The core activities of the centre are research in issues of importance to emerging capital markets, organising research and policy conferences that bring together leaders in academics, practice, and financial regulation on a single platform, undertaking research-based initiatives that will aid and inform financial practice and policy, and training next generation finance researchers with the help of specially crafted courses and projects. Creation of special datasets necessary to conduct research in emerging capital markets is another important CAF activity.

Future plans

Going forward, we want to expand the scope of our current activities, and take on new impactful emerging markets research projects, and launch new research-based policy initiatives aimed at broadening and deepening capital markets. Emerging markets research will remain our core priority. Our recent trade credit securitisation initiative is a major example of a policy initiative inspired by our research findings. We are also committed to developing our linkages with financial sector regulators and practitioners.

We have plans for a series of group meetings/workshops on securitisation of trade credit receivables of SMEs and access to bank financing for SMEs. Investor education programmes shaped and formulated by our research findings on behavioural biases in stock markets are planned. We also hope to work towards developing a culture of high quality finance research in the Asia-Pacific region and, to that end, engage with other finance researchers in the region. Research at CAF focuses on emerging capital markets.
Following are the current working papers of CAF and its affiliated faculty

**Borrowing culture and debt relief: Evidence from a policy experiment**

In the present paper we investigate the economic consequence of a large-scale debt relief programme on the debt repayment culture of the borrowers. Using loan account level data for a large sample of rural borrowers before and after a nation-wide debt relief programme for overdue rural debt launched by the Indian government in 2008, we compare the effects of the programme on different groups of borrowers: those who received full debt relief, those who received partial debt relief, and those who did not benefit at all from the programme as their loans were not in default. We find that the effects are negative for all groups: number of days taken to repay debt increases for all borrowers following a waiver. Interestingly, the effects are the most negative for the group that did not benefit at all. Altogether, our results indicate a pervasive deterioration of borrowing culture induced by the debt waiver programme with a view to analyse the impact on households who defaulted most likely because of a weather shock and those who most likely defaulted strategically. Indian Debt relief programme for small and marginal framers—one of the largest in history—provides an ideal natural experiment as it was granted to all eligible defaulting farmers irrespective of weather condition. Using a loan account level data for more than 10,000 agricultural borrowers of a large public sector bank in India, we compare the effect of loan waiver on different types of borrowers; those who defaulted after suffering a bad weather shock, those who defaulted without any weather shock and those who did not default and hence missed the waiver. The analysis shows that debt relief causes significant improvement in the post waiver loan repayment behaviour of those farmers who defaulted after suffering from an adverse weather shock in the pre-waiver period. We do not find such improvement in the post waiver loan repayment behaviour of those farmers who defaulted despite having favourable weather condition. We also find that, rationally anticipating this phenomenon, loan officers significantly reduce funding to farmers who defaulted despite a favourable weather. We also find that, rationally anticipating this phenomenon, loan officers significantly reduce funding to farmers who defaulted despite having favourable weather conditions in the pre-waiver period and increase funding to farmers who defaulted because of adverse weather

**On Second Thought: The Impact of Information on Behavioural Biases**

Behavioural biases like disposition effect and overconfidence have received much attention as a potential driver of numerous anomalies observed in the markets. Also, it has been argued that information uncertainty tends to exacerbate these biases and induce stronger irrational behaviour among investors. Using a unique investor-level database, this paper examines whether and how pertinent information impacts behavioural biases. We document that disposition effect in stocks is lower following high-degree of private information based trading during the days preceding quarterly earnings announcements. Also, consistent with theoretical predictions, we find the price discovery to be faster in stocks with lower disposition effect. Finally, we find that higher pre-announcement information asymmetry and disclosure noise increases disposition effect in the post-announcement period

**Exogenous Weather Shocks and Debt Relief: Evidence from a Natural Experiment**

In this paper, we examine the consequences of a large scale debt relief programme with a view to analyse the impact on households who defaulted most likely because of a weather shock and those who most likely defaulted strategically. Indian Debt relief programme for small and marginal framers—one of the largest in history—provides an ideal natural experiment as it was granted to all eligible defaulting farmers irrespective of weather condition. Using a loan account level data for more than 10,000 agricultural borrowers of a large public sector bank in India, we compare the effect of loan waiver on different types of borrowers; those who defaulted after suffering a bad weather shock, those who defaulted without any weather shock and those who did not default and hence missed the waiver. The analysis shows that debt relief causes significant improvement in the post waiver loan repayment behaviour of those farmers who defaulted after suffering from an adverse weather shock in the pre-waiver period. We do not find such improvement in the post waiver loan repayment behaviour of those farmers who defaulted despite having favourable weather condition. We also find that, rationally anticipating this phenomenon, loan officers significantly reduce funding to farmers who defaulted despite a favourable weather. We also find that, rationally anticipating this phenomenon, loan officers significantly reduce funding to farmers who defaulted despite having favourable weather conditions in the pre-waiver period and increase funding to farmers who defaulted because of adverse weather
conditions in the pre-waiver period. The results suggest that debt relief given during adverse weather conditions enhances both ex-ante and ex-post efficiency whereas debt relief given during favourable weather conditions is likely to fuel more strategic default.

Research Team: Saptarshi Mukherjee, Krishnamurthy V. Subramanian and Prasanna Tantri (ISB)

Access to finance in rural economies

In keeping with its focus on issues important to emerging economies, CAF has begun a new research track on finance in rural economies. Our first project in this area tries to determine if Indian commercial banks respond effectively to sudden increases in credit demand in the agricultural sector caused by weather disruptions like drought. We are also in the process of obtaining detailed account-level information on agricultural loans to be used in future projects.

Research Team: Sankar De (ISB) and Siddharth Vij (NYU)

Valuing innovation: Evidence from Cisco’s acquisitions

We estimate the value of innovative assets using the value paid for private, innovative targets. Since young, private firms are the primary drivers of mold-breaking innovation, we focus on such firms. We adopt a novel approach that uses the price paid for young, private targets together with unique data hand-collected from Google Patents. We minimise systematic biases by comparing across deals undertaken within the same year by the serial acquirer Cisco Systems, whose processes for acquisitions are quite fine-tuned. We find that the value of a portfolio of innovative assets increases with the intellectual property rights, the expertise underlying the assets, and the human capital of the employees working with these assets. Finally, consistent with intangible assets having a value that is context-specific, we find that the value of the target’s innovative assets increases when the assets are more relevant to the acquirer.

Research Team: Chandra Sekhar Mangipudi (ISB), Krishnamurthy V. Subramanian (ISB) and RajkamalVasu (ISB)

Creditor rights during a financial crisis: An analysis using bank loan covenants

Optimal debt contracts seek to balance ex-post control rights allocated to creditors against borrowers’ need to secure financing ex-ante. Post a financial crisis that is accompanied by a recession, the likelihood of ex-post adverse outcomes increase while ex-ante financing opportunities dry up. What is the effect of this interplay on the control rights assumed by creditors during a financial crisis? We study this question by comparing covenants in bank loans issued before and after the financial crisis of 2008. We find that post the crisis: (i) covenants requiring provision of liquidity and those restricting leverage in the capital structure were more likely; (ii) covenants restricting capital expenditure and those related to borrower performance were less likely; and (iii) using difference-in-difference tests, we find that these differences were disproportionately more pronounced for loans taken for financial restructuring but not for other loans. We argue that post the financial crisis, loan contracts responded primarily to heightened risks of debt-equity conflicts stemming from asset substitution, illiquidity transformation and debt overhang. Finally, these differences in covenants have real effects by affecting the capital expenditures of firms. To our knowledge, ours is the first study to examine the effects of a financial crisis on creditor rights outside bankruptcy. Our study highlights another channel - creditor...
rights outside bankruptcy to which the real effects of a financial crisis permeate through the economy.

Research Team: Sudip Gupta (Stern School of Business, NYU), Anurag Singh (ISB) and Krishnamurthy V. Subramanian (ISB).

Comment on “Women as policy makers: Evidence from a randomised policy experiment in India”

In the paper “Women as Policy Makers: Evidence from a Randomised Policy Experiment in India” the authors Raghabendra Chattopadhyay and Esther Duflo use political reservations for women in India to study the impact of women’s leadership on policy decision. However, we have observed some internal inconsistencies pertaining to the proof of “Proposition 1” of the model which is crucial for establishing the rationale for female reservation and have put forward the alternate condition. The condition that we derive, plays a pivotal role to determine whether a woman candidate would run an election unopposed and thereby also impacts the need for reservation for a woman candidate.

Research Team: Mudit Kapoor and Arkodipta Sarkar

Publications 2012/13


Ravi Jaganathan, Mudit Kapoor and Ernst Schaumburg, ”Why are we in a recession? The Financial Crisis is the Symptom not the Disease!” Journal of Financial Intermediation.

Publication success of papers presented at Summer Research Conference

An important indicator of the quality of an academic conference is how well does the acceptance of a paper in the conference programme predict its publication success in the post-conference phase, especially publication in top journals. On this count, the CAF’s SRCF performs exceedingly well even when compared to some of the top global finance conferences.

I. In terms of the broadest measure of publication success (publication of conference papers in any academic journal of repute), CAF SRCF ranks
higher than all other well-established international finance conferences that we could find data for. The other conferences are the annual meeting of the AFA (American Finance Association), the annual meeting of the WFA (Western Finance Association), the annual meeting of the UWFC (Utah Winter Finance Conference), the annual meeting of the EFA (European Finance Association), and the annual meeting of the FMA (Financial Management Association). Like SRCF, they are held annually, are open to all interested finance researchers, and select papers through a well-established and pre-announced review process.

II. In terms of the strictest measure of publication success (publication in top journals excluding proceedings of conferences organised by the same journals), CAF SRCF ranks higher than all but one (UWFC). The top journals are defined below.

The table below presents the information the findings are based on. In the finance arena, hundreds of conferences take place each year. The table compares SRCF records with the five major conferences noted above. We consider publication records of SRCF papers during 2004-2009.

<table>
<thead>
<tr>
<th>Conference</th>
<th>Period</th>
<th>Number of papers</th>
<th>All Journals</th>
<th>Top Journals**, including conference proceedings</th>
<th>Top journals, excluding conference proceedings</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAF/ISB SRC</td>
<td>2004 - 2009</td>
<td>81</td>
<td>51.9%</td>
<td>28.4%</td>
<td>27.2%</td>
</tr>
<tr>
<td>UWFC*</td>
<td>1991 - 2000</td>
<td>100</td>
<td>48.0%</td>
<td>41.0%</td>
<td>38.0%</td>
</tr>
<tr>
<td>AFA*</td>
<td>1990 - 1999</td>
<td>990</td>
<td>43.8%</td>
<td>29.2%</td>
<td>21.9%</td>
</tr>
<tr>
<td>WFA*</td>
<td>1991 - 2000</td>
<td>1149</td>
<td>38.5%</td>
<td>24.9%</td>
<td>22.6%</td>
</tr>
<tr>
<td>EFA*</td>
<td>1996 - 1997</td>
<td>253</td>
<td>27.3%</td>
<td>9.5%</td>
<td>8.7%</td>
</tr>
<tr>
<td>FMA*</td>
<td>1991 - 2000</td>
<td>5063</td>
<td>25.0%</td>
<td>2.7%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>


Conference/workshop/invited presentation 2012/13

Krishnamurthy V. Subramanian (ISB), A Theory of Mergers and Acquisitions involving intangible assets, Adam Smith Corporate Finance Conference, Oxford University, 2013

Krishnamurthy V. Subramanian (ISB) and Ajay Yadav (Fuqua School of Business, Duke University), Deregulation of bank entry and bank failures, 3rd International Conference of the Financial Engineering and Banking Society (FEBS), June 2013.


Rahul Chhabra and Sankar De, Disposition to Buy and Disposition to Sell: Implications for Investors and the Market, faculty seminar, Indian School of Business, Hyderabad, June, 2012.

Sankar De and Siddharth Vij, Are Banks Responsive to Exogenous Shocks to Credit Demand in Rural Economies? District-level Evidence from India, faculty seminar, Indian School of Business, Hyderabad, June, 2012.

Rahul Chhabra and Sankar De, Disposition to Buy and Disposition to Sell: Implications for Investors and the Market, faculty seminar, Hong Kong University of Science and Technology, Hong Kong, April, 2012.

Trade Credit securitisation

Trade credit is a very important source of financing for Indian SMEs, as documented by all existing studies/reports on the subject. All trade credit financing is direct transactions between two companies outside the usual intermediated financial system. However, market financing should involve lower transactions as well as lower recurring interest costs than bilateral trade credit financing. How can trade credit financing of SMEs be brought into the market system? The initiative proposes a strategy to do just that. SMEs often sell on credit to their large customers and then wait for long periods for payment. If the receivables owed to the SMEs by large firms could be securitised, it would result in both deepening and broadening of Indian credit markets. The potential benefits include the following:

• The SMEs could reduce their investment in working capital, and thus their need for finance, significantly.
• The ensuing balance sheet clean-up would improve the credit worthiness of the SMEs.

Research-based policy initiatives

We desire our research findings to inform and influence business practices and government policies in India and other emerging markets. In this context, we are excited about our new research based policy initiatives.
of a typical SME, qualifying the company for more bank loans as well.

- Growth in the SME and financial services sectors will have strong positive multiplier effects throughout the economy.

The policy recommendations were developed by Sankar De when he was working with the Raghuram Rajan Committee on Indian financial sector reform. The recommendations were accepted by the committee and are included in the committee’s report. We are optimistic that the initiative, if implemented, will be very beneficial for SMEs in India, generating positive and significant societal impact. Our role in the initiative is to first seek feedback from the relevant constituencies (SME associations, financial institutions, the RBI) on this and, given a broad agreement on the value of the initiative, to persuade the constituencies to initiate the securitisation process. We are delighted to report that the initial reaction of all concerned parties, including the SMEs, the banks, and especially the regulators, has been uniformly positive. At a high-level policy conference in Washington DC coinciding with the 2011 bilateral summit on US-India economic and financial cooperation between the Indian Finance Minister and the US Treasury Secretary, CAF’s presentation on the initiative was enthusiastically received by the audience. Following the conference, the Indian Finance Ministry has announced a new initiative to provide factoring services to help improve SME financing. It is a major step toward full-fledged securitisation.

Investor Education

We have completed several research projects in trading and investment decisions of individual investors in Indian capital markets. Most of them are relatively small investors, judging by the size of their investments as well as personal wealth. However, as a group, they are enormously important. They account for more trades by number as well as volume than any other category of investors, including domestic financial institutions and foreign institutional investors. In other words, they are the bulwark of Indian capital markets. In our projects we have analysed all trading records of all such investors in Indian capital markets over an eighteen-month period, altogether several hundred million records. The findings of the projects are thought provoking. In one study we document that the individual investors consistently increase both buying and selling if their past investment outcomes are positive, and decrease them if the outcomes are negative, but appear to care much less for the size of the same outcomes (gains as well as losses). In other words, in effect they chase zero returns on their investments. Inclusive of transactions costs, they suffer wealth loss. In another study we document that this trading pattern results in consistent and significant wealth transfers from individual investors to institutional investors who exhibit little, if any, behavioural biases in their investment decisions. The findings of our research underline a critical need for investor education. We are currently in discussions with various stakeholders (stock exchanges, regulatory authorities) about the scope and format of such education. Going forward, this will be a major policy initiative for us.
CAF organises an annual research conference on recent advances in corporate finance in the summer. The CAF summer research conference in finance (SRCF) is held on the ISB campus in Hyderabad. The conference has evolved into a major international research forum and attracts submissions from finance researchers around the world. For each conference, the papers are selected by a worldwide committee of experts in the topic of the conference. All past conference papers are available on CAF website www.isb.edu/CAF. We also organise policy conferences. A CAF policy conference is a special event. For each policy conference, a socially relevant and important business topic is chosen with the conscious aim to bring together, on a single platform, the world leaders among academicians, practitioners and policy-makers who share an interest in the topic. Within the broad topic, the most important issues are identified and a panel of experts discusses and debates each issue.

Conferences 2012/13

Ninth annual Summer Research Conference 2012 in Finance, July 26 - 29, 2012

Douglas W Diamond, Merton H Miller Distinguished Service Professor of Finance and Richard N Rosett Faculty Fellow, University of Chicago’s Graduate School of Business, and CAF Academic Fellow 2012, delivered a keynote address at the conference. Recipient of many teaching as well as research awards and honours during a distinguished academic career, Professor Diamond was a former President of the American Finance Association and the Western Finance Association.

The topic of his talk was: The Theory of Debt Maturity: Long and Short Debt Overhang. The NSE Best Paper Award at the Summer Research Conference hosted by CAF, was conferred upon Viral Acharya (NYU-Stern, CEPR ECGI and NBER) and Raghuram Rajan (Booth School of Business, University of Chicago and NBER) for their paper entitled “Sovereign debt, government myopia, and the financial sector”.

The conference agenda included the following sessions:

- Corporate Governance
- Corporate Control
- Venture Capital
- Politics and Finance
- Banking and Insurance

Trade Credit securitisation initiative

Second working group meeting, December, 2012

CAF hosted the second meeting of the working group for the trade credit securitisation initiative in December, 2012. The meeting was attended by notable people from Indian School of Business, Citi Bank, IFMR Capital, SIDBI, FSME, ICRA, CRISIL and other independent experts. The main purpose of the meeting was to update the members on the progress of the pilot and discuss the detailed structure of the proposed instrument. Meanwhile, the committee also discussed issues on the credit rating of the SMEs and the mandate and guidelines of RBI pertaining to the report submitted by the RBI committee on securitisation. The discussion ended with distribution of responsibilities for the pilot as well as the final project among the working group members.
Every year CAF invites a finance researcher of international standing to visit CAF as the Academic Fellow of the year. The Academic Fellow interacts with the resident faculty in research and delivers the keynote address at our flagship summer research conference.

Professor Eduardo Schwartz from the UCLA Anderson School of Management will be the CAF Academic Fellow 2013. In that capacity, he will visit ISB during the upcoming summer research conference at the end of July 2013.

Professor Schwartz is the California Chair in Real Estate and Land Economics at UCLA. He is known for pioneering research in several areas of finance, particularly derivatives. His major contributions include: the real options method of pricing investments under uncertainty; the Longstaff–Schwartz model - a multi-factor short-rate model; the Longstaff-Schwartz method for valuing American options by Monte Carlo Simulation; the use of Finite difference methods for option pricing. He has served as associate editor for more than a dozen journals, including Journal of Finance, Journal of Financial Economics and Journal of Financial and Quantitative Analysis.

He is a research associate of the National Bureau of Economic Research and is a former president of the Western Finance Association and the American Finance Association. He shares these distinctions with several former CAF Academic Fellows. He has published more than 80 articles in finance and economics journals.

Eduardo Schwartz earned a bachelor’s degree in Industrial Engineering from University of Chile in 1963. He earned master’s degrees in 1973 and PhD in 1975 in Finance from University of British Columbia.

CAF academic fellows

Franklin Allen, 2005
Richard Roll, 2006
Raghuram Rajan, 2007
Michael Brennan, 2008
Ravi Jagannathan, 2009
Sheridan Titman, 2010
Anjan Thakor, 2011
Douglas Diamond, 2012
Eduardo Schwartz, 2013
Currently, there is a serious worldwide shortage of well-trained finance researchers. In India, the shortage is even more acute. Conceived as a response to this shortage, training of the next generation of researchers is an important CAF activity. Junior research staff at CAF is recruited from top-tier Indian institutions such as IITs, IIMs, IISs and Delhi School of Economics. While at CAF, they receive hands-on training in finance research supplemented with specially designed research skill — building courses in statistics, econometrics, and data analysis. They typically stay at CAF for two to three years, with the expectation that they will proceed to a top-tier PhD programme at the end of their research apprenticeship at CAF. Though this initiative is small in size (our intake is two in an average year), its success has been impressively high.

**Research**

Soon after joining, new CAF researchers are assigned to ongoing research projects which gives them hands-on experience of the research process. They are involved in all aspects of the project. Later, as they grow in confidence, they are also encouraged to initiate and take forward new projects based on their own research ideas.

**Career progression**

Admission to a top-tier PhD programmes in Finance are intensely competitive with a large and diverse applicant pool applying for very few seats (4-6 per year at each school). The time spent at CAF allows our researchers to build their research credentials which goes a long way in differentiating them from other applicants. Some examples of CAF Researchers getting admitted to top programmes are as follows:

- **Saptarshi Mukherjee** will be joining the Finance PhD programme at New York University’s Stern School of Business from starting of Fall 2013
- **Rahul Chhabra** was admitted to the PhD programme in Finance at the Kellogg School of Management, Northwestern University and Ross School of Business, University of Michigan starting Fall 2012
- **Siddharth Vij** received admission offers for the PhD programme in Finance at NYU’s Stern School of Business and the PhD programme in Global Economics and Management at UCLA’s Anderson School of Management starting Fall 2012
• Ex-CAF Researchers Naveen Gondhi, Vidya Kamate and Vishal Mangla are currently Finance PhD students at the Kellogg School of Management, Northwestern University
• Manpreet Singh is currently doing a Finance PhD at the Hong Kong University of Science and Technology
• Leena Kinger Hans was admitted to the Accounting PhD programme at the London Business School in 2010

Database creation
Paucity of reliable data is a serious challenge in emerging markets research. It makes datasets creation an important activity for CAF. In 2010-11, we have put together two special databases that will make new and path breaking research in several important areas possible.

Database on finance, growth and inequality
It is a database of 182 countries for the period 1950 to 2009. This is the most comprehensive database on finance, inequality and growth, and extends all existing database. Our database combines the information on income and inequality contained in the UNU-WIDER dataset and the Human Development Report published by UNDP; the World Bank database on financial development, and databases on legal, institutional and political variables compiled by different researchers in their respective fields of work. This database has the potential of facilitating research not only in finance, inequality and growth, but in many other subjects like gender equality, poverty, political systems, and government policy.

Databases on orders and trades in Indian capital markets
The National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) are the two most significant stock exchanges in India and between them are responsible for the vast majority of share transactions. Both NSE and BSE have provided CAF with a comprehensive database of all the stocks traded on the exchange for a period of time.

National Stock Exchange (NSE) trades database
Specifically, NSE transactions database contains the complete trading records of all stocks that traded on the exchange between January 1, 2005 and June 30, 2006. The most significant characteristic of the dataset is that it comes at the transaction level which identifies both counter parties (buyer and seller) in a transaction, unlike all other existing databases which have information only on one side (buy or sell). The dataset contains about a billion trading records (about two billion records if one considers buys and sells separately) carried out by over three million distinct investors.

Bombay Stock Exchange (BSE) trades database
Similarly, the BSE database contains the complete trading records of all stocks that traded on the exchange between January 1, 2005 and December 30, 2010. The dataset contains about 5 billion trading records (about 10 billion records if one considers buys and sells separately) carried out by over three million distinct investors.

These are perhaps the most comprehensive datasets that exist in the world today on trading behaviour, and addresses the problems of representativeness and missing information that plague existing datasets. Until now empirical evidence on the various hypotheses about trading behaviour of different classes of investors has come from analysing the actions of participants in the more developed and sophisticated markets like the USA and Finland. Verification of these findings with evidence obtained from emerging economies can make a significant contribution to our understanding of the investor behaviour across the world.

Farmers’ loan account database
CAF also has data on detailed account information from one of the public sector banks of around 25000 farmers. The data consists of every transaction made through the loan accounts of farmers. This data is unique and none of the empirical works on similar domain have used such a detailed dataset.

UNIDO’s Industrial Statistics Database
The INDSTAT2 2010 ISIC Rev. 3 database contains data for the period from 1963 to 2007 for 162 countries (except for Index numbers of industrial production, which may have data up to 2008). The data are arranged at the 2-digit level of the International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3 pertaining to the manufacturing sector, which comprises 23 industries. The database combines historical time series data derived from INDSTAT3 ISIC Rev. 2 with those of recent years derived from INDSTAT4 ISIC Rev. 3. The database contains annual time-series data on the following items: Number of establishments, Employment, Wages and salaries, Output, Value added, Gross fixed capital formation, Number of female employees, Index numbers of industrial production.

Debt Recovery Tribunal (DRT) Database
The database contains annual data for the period from 1988 to 2009 for about 9059 companies and their subsidiaries. The time series data is available for the key financial statement items like Assets, Sales, Borrowings, Amortisation and Depreciation, Interest paid, etc. The database is provided by ICICI bank Ltd and contains the information about various aspects of bank loan services See symbols folder such as client’s loan account, collateral, repayments, sanction details etc. This database can be used for research related to loan accounts.
People & Supporters

CAF advisory board

Ajit Rangnekar, Dean, ISB

Members of ISB

Ajit Rangnekar, Dean ISB, Chairman
M.R. Rao, Executive Director, CAF, ISB

Other business schools

Franklin Allen, Nippon Life Professor of Finance; Professor of Economics, The Wharton School, University of Pennsylvania; President, American Finance Association, 2000

Bhagwan Chowdhry, Professor of Finance and Faculty Director, Master of Financial Engineering programme, Anderson School of Management, UCLA

John Cochrane, AQR Capital Management Distinguished Service Professor of Finance, Booth School of Business, University of Chicago; President, American Finance Association, 2010

Ravi Jagannathan, Chicago Mercantile Exchange/John F. Sandner Professor of Finance and a Co-Director of the Financial Institutions and Markets Research Centre, Kellogg School, Northwestern University; President, Western Finance Association (WFA), 2005

Raghuram Rajan, Eric J. Gleacher Distinguished Service Professor of Finance, Booth School of Business, University of Chicago; President, American Finance Association, 2011

Eduardo Schwartz, California Chair in Real Estate and Land Economics, and Area Chair of Finance, Anderson School of Management, UCLA; President, American Finance Association, 1996

Rangarajan Sundaram, Yamaichi Faculty Fellow and Professor of Finance, Stern School of Business, New York University

Anjan Thakor, Director of Doctoral Programmes and John E. Simon Professor of Finance, Olin Business School, Washington University in St. Louis

Sheridan Titman, McAllister Centennial Chair in Financial Services at University of Texas (Austin); President, American Finance Association, 2012

Financial institutions

Pramit Jhaveri, Citi Country Officer (CCO), Citigroup, India

Ravi Narain, Managing Director and CEO, National Stock Exchange, India, and Chairman, National Securities Clearing Corporation Ltd.

Sanjay Nayar, CEO and Country Head, Kohlberg, Kravis and Roberts (KKR), India

Shikha Sharma, Managing Director and CEO, Axis Bank, India

Regulatory Bodies

U K Sinha, Chairman, Securities and Exchange Board of India (SEBI)

CAF staff

M.R. Rao, Executive Director
Prasanna Tantri, Associate Director
Divya Nair, Manager
Subhendu Bhowal, Researcher
Saptarshi Mukherjee, Researcher
Arkodipta Sarkar, Researcher
Gursharan Singh Bhue, Researcher

Think-Tanks

Glenn Boyle, BNZ Chair, Department of Economics and Finance, University of Canterbury, New Zealand and Distinguished Research Fellow, New Zealand Institute for the Study of Competition and Regulation (ISCR), New Zealand

Shubhashis Gangopadhyay, Founder Director, India Development Foundation (IDF), India

E. Han Kim, Fred M. Taylor Professor of Business Administration and Director, Mitsui Life Financial Research Centre and East Asia Management Development Centre, Ross School of Business, U. Michigan

Per Stromberg, Head of Research, Institute for Financial Research (SIFR) and the SSE Centennial Chair in Finance and Private Equity, Stockholm School of Economics, Sweden

Jiang Wang, Mizuho Financial Group Professor, MIT and Director, China Centre for Financial Research (CCFR), Tsinghua University

People & Supporters

CAF staff

M.R. Rao, Executive Director
Prasanna Tantri, Associate Director
Divya Nair, Manager
Subhendu Bhowal, Researcher
Saptarshi Mukherjee, Researcher
Arkodipta Sarkar, Researcher
Gursharan Singh Bhue, Researcher

Think-Tanks

Glenn Boyle, BNZ Chair, Department of Economics and Finance, University of Canterbury, New Zealand and Distinguished Research Fellow, New Zealand Institute for the Study of Competition and Regulation (ISCR), New Zealand

Shubhashis Gangopadhyay, Founder Director, India Development Foundation (IDF), India

E. Han Kim, Fred M. Taylor Professor of Business Administration and Director, Mitsui Life Financial Research Centre and East Asia Management Development Centre, Ross School of Business, U. Michigan

Per Stromberg, Head of Research, Institute for Financial Research (SIFR) and the SSE Centennial Chair in Finance and Private Equity, Stockholm School of Economics, Sweden

Jiang Wang, Mizuho Financial Group Professor, MIT and Director, China Centre for Financial Research (CCFR), Tsinghua University

Financial institutions

Pramit Jhaveri, Citi Country Officer (CCO), Citigroup, India

Ravi Narain, Managing Director and CEO, National Stock Exchange, India, and Chairman, National Securities Clearing Corporation Ltd.

Sanjay Nayar, CEO and Country Head, Kohlberg, Kravis and Roberts (KKR), India

Shikha Sharma, Managing Director and CEO, Axis Bank, India

Regulatory Bodies

U K Sinha, Chairman, Securities and Exchange Board of India (SEBI)
Citi Foundation

Financial grants from Citi Foundation have supported most CAF activities in recent years, while monitoring of our performance by Foundation staff has helped us remain focused on our goals and objectives.

Raghuram Rajan (U. Chicago), author of the original concept note for CAF, oversaw the founding of CAF in 2004. He has remained associated with CAF and sits on CAF advisory board.

Franklin Allen (Wharton), has helped and supported CAF in many different ways over the years, including participation in CAF conferences and research projects and organising joint conferences between CAF and Financial Institutions Centre (FIC) at Wharton. Allen also sits on CAF advisory board.

Bhagwan Chowdhry (UCLA), a founder of CAF along with Rajan, has been a major influence in the development and growth of CAF since its birth through his advice, help, and regular participation in CAF conferences and research activities. He also sits on CAF advisory board.

Ravi Jagannathan’s (Kellogg) association with CAF began with organising the first CAF research conference in 2004. He continues to participate in CAF conferences and research, and also sits on CAF advisory board.

Raghuram Rajan (U. Chicago), author of the original concept note for CAF, oversaw the founding of CAF in 2004. He has remained associated with CAF and sits on CAF advisory board.

Financial grants from Citi Foundation have supported most CAF activities in recent years, while monitoring of our performance by Foundation staff has helped us remain focused on our goals and objectives.

CAF associates

ISB faculty
Amit Bubna
Rajesh Chakrabarti
Saumya Prabhat
Ramana Sonti
Krishnamurthy Subramanian
Ram Thirumalai
Shashwat Alok
Nitin Kumar

Others
Franklin Allen (Wharton)
Bhagwan Chowdhry (UCLA)
Ravi Jagannathan (Kellogg)
NR Prabha (U. Maryland)
Jun Qian (Boston College)
Raghuram Rajan (U. Chicago)

CAF history

CAF represents ISB’s vision to become a research-driven, internationally ranked, management institution. Before CAF, there were no research centres in India, and only a few in Asia, dedicated to finance research at a level comparable to the best business schools in the world. In early 2003, a brainstorming meeting was held in Mumbai to formulate action plans for CAF, including its proposed objectives, activities and structure. The meeting was attended by senior representatives of several Indian and multinational financial services giants and the Reserve Bank of India. Professor Raghuram Rajan (U. Chicago and Finance Area Leader at ISB at the time) represented the ISB.

Professor Sankar De headed the Centre from 2004 to 2012. Currently Professor M R Rao is the Executive Director of the Centre. Professor Krishna Ramaswamy and Professor Krishnamurthy Subramanian are the Co-chairs for the Summer Research Conference 2013. The Centre started functioning in August 2004, with a week-long finance research conference. Finance scholars from international and Indian universities participated in the conference, beginning a pattern that has continued to this day.

CAF is deeply grateful to the following individuals for their advice, help, and support throughout our short history, and to Citi Foundation for generous financial support.

Supporters

Partners