

**In Honor of Andrei Shleifer: Winner of the John  
Bates Clark Medal**

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Andrei Shleifer is the 1999 recipient of the John Bates Clark Medal, an award presented by the American Economic Association to an outstanding economist under the age of 40. The Clark medal citation singles out his contributions to three fields, corporate finance (corporate governance, law and finance), the economics of financial markets (deviations from efficient markets), and the economics of transition. One could add a fourth area, an early but then spurned love, macroeconomics (the role of increasing returns in cycles and growth).

In each area that Andrei has touched, his contributions have shaped the basic paradigm and have triggered considerable follow-up research. Andrei focuses on the big issues of economics. A recurring theme of his research is the respective role of markets, institutions, and governments. In his work, markets do not work perfectly and institutions are of the essence. But one should not trust governments to always do the right thing, be it in the design of institutions or in direct interventions. Governments are not perfect either, and sometimes, they can be quite bad indeed.

In the hands of others, such themes could lead to ideological blabber or to banal generalities. In Andrei's hands, they don't. In each case, Andrei focuses on a specific market, a specific institution, a specific mechanism. He writes down a simple model, very much in the old Chicago tradition, and uses it as a guide to the empirical evidence. He looks at the available evidence, often, as in his work on law and finance, assembling that evidence for the first time. The general lessons come from the accumulation of papers and evidence. This is why his work is so convincing and influential, and likely to endure.

This article summarizes Andrei's contributions. The next four sections describe his contributions to macroeconomics, to financial markets, to corporate finance, and to transition. The books and papers by Andrei referenced in this article are listed in chronological order in Table 1, and referred to by number in the text. Other references are by author and date.

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## 1 Macroeconomics: Schumpeterian Cycles and Increasing Returns

Schumpeterian cycles, and the role of increasing returns in both fluctuations and growth is an old theme in macroeconomics, often invoked but rarely formalized.

Andrei, never scared by the size of a challenge, decided to take on the first theme in his Ph.D. thesis at MIT. In “Implementation Cycles” [3], he argued that technological progress would naturally lead to cycles. The model in that paper is quite beautiful, by far the most sophisticated model Andrei ever wrote. (This surely reflects the iron hand of his thesis advisor at MIT, Peter Diamond. The evidence suggests that Peter’s influence on Andrei’s formalizations quickly faded after Andrei’s graduation.) At the center of the model was the link between innovation and monopoly power: Firms that must decide when to implement an innovation might prefer to do it in booms, when the size of the market and monopoly profits are larger, which will lead to bunching of implementations and to output booms and busts.

The article was important in many ways. It showed that small technological shocks could have large effects on output. It showed one way in which imperfect competition could have a major impact on the nature of fluctuations. Even today, it may be one of the most convincing real business cycle models around, showing how a smooth stream of inventions can generate large short run fluctuations in output. Indeed, the model may well provide one of the clues for the mechanism behind the current Internet-driven U.S. expansion.

As Andrei moved from Cambridge to Princeton and then to Chicago after his Ph.D., he started exploring a related but distinct theme, the role of increasing returns in both growth and fluctuations. In what turned out to be the beginning of a long collaboration, he joined efforts with Kevin Murphy

and Rob Vishny, both assistant professors at Chicago at the time. Kevin Murphy's work, both alone and with Andrei, has since been recognized by a previous Clark Medal. Rob Vishny deserves special mention. Over two-thirds of the papers by Andrei I review in this article are joint with Rob. If the prize could be shared, then Rob would clearly have deserved to share it.

In "Industrialization and the Big Push" [7], Andrei, Kevin, and Rob took up an old idea in development economics, the "Big Push" argument first put forward by Rosenstein-Rodan in 1943. The Rosenstein-Rodan argument was based on increasing returns to scale. If, in a poor economy, any one firm shifted to an increasing returns technology, the market might be too small to allow this firm to make profits. But if many firms shifted at the same time—in a "big push"—the market might then be large enough to allow each of them to be profitable. The contribution of the paper was to formalize the argument and clarify the conditions under which it held. The first conclusion was quite striking: In the absence of other distortions, the big push argument did not hold. If adopting an increasing returns technology was unprofitable for one firm, this implied that a first firm adopting that technology would decrease, rather than increase, the size of the market for other firms. If it was unprofitable for one firm in isolation, it remained unprofitable for all firms to do it simultaneously. The paper then showed how the argument could be rescued, what other plausible distortions might introduce a wedge between the effects on profit and the effects on market size, leading to the possibility of multiple equilibria and scope for a big push.

In "Income Distribution, Market Size and Industrialization" [6], Andrei, Kevin, and Rob pursued a related theme—again an old and somewhat fuzzy theme in development economics—that productivity growth in agriculture might lead to an increase in the size of the market for manufactured goods, making it profitable for manufacturing firms to shift to an increasing returns technology. In that article, they emphasized the importance of income distribution for growth. Too much equality, or too much inequality, both led

to a smaller demand for manufactured goods, leading in turn to a delay in industrialization.

In “Building Blocks of Market Clearing Business Cycle Models” [8], Andrei, Kevin, and Rob turned to the scope for increasing returns to generate fluctuations. They focused on external increasing returns (external to each firm, but internal to the industry), and showed that, if the demand for goods was sufficiently intertemporally elastic (as may be the case for durables such as cars, where a small expected decrease in the price may lead people to delay their purchase), such increasing returns could lead to cycles, with production being bunched over time, and periods of high and low production and productivity. Their model was useful in clarifying what might be needed to generate such fluctuations. But it was not convincing. The evidence for substantial external increasing returns remains weak, at least at business cycle frequencies. Ten years later, it is fair to say that we (the macroeconomists) are still unclear about the role of increasing returns in short-run fluctuations.

After writing that paper, Andrei concluded that macroeconomics was much too hard, and he concentrated on finance. He may have been wiser than those of us who stayed in the field. But his work remains influential, both in macroeconomics and in development.

## 2 Inefficient Financial Markets

Most of Andrei’s work on financial markets is best described as a challenge to the efficient markets hypothesis—the proposition that the prices of financial assets are always equal to the appropriately discounted expected value of payments associated with the asset.

His work is beautifully summarized in his Clarendon lectures [B3]. In these lectures, Andrei argues, a challenge to the efficient market hypothesis must have at least two components. First, it must have “noise traders,”

traders who either buy or sell assets based on considerations other than expected return and risk, or act on the basis of non-rational expectations. Second, it must have limited arbitrage, so the effects of noise traders on prices are not fully eliminated through the actions of other traders. This approach provides a useful guide to Andrei's work.

In "Noise Trader Risk in Financial Markets" [10], written with Brad De Long, Lawrence Summers, and Robert Waldmann, Andrei developed a basic asset pricing model with noise traders and limited arbitrage. Noise traders were investors whose demand was unrelated to expected returns, and their demand was simply taken to be white noise. Other investors were assumed to be risk averse expected utility maximizers, with rational expectations. By assumption, these investors had finite horizons, which meant that if the price of the asset was lower than its fundamental value, investors could not buy it and hold it forever (a riskless strategy), but had to resell at some point in the future, bearing the risk that the price might diverge even further from fundamentals at that point. This implied that investors took only limited positions, and arbitrage was therefore limited. Under these assumptions, the price will typically differ from its fundamental value. Asset prices will also exhibit mean reversion: A high price relative to the fundamental value would be followed on average by a decline in the price in the future, a low price by an increase in the price.

Andrei showed how this approach could shed light on one of the most puzzling facts in finance, the "closed-end fund puzzle." Closed-end funds are mutual funds that hold other publicly traded securities and issue a given number of shares which then trade on the stock market. One might have thought that the values of these shares would always reflect the value of the underlying securities, but they do not. Closed-end funds typically (but not always) sell at a discount, although the discount varies a lot over time. In "Investor Sentiment and the Closed-end Fund Puzzle" [11], written with Charles Lee and Richard Thaler, Andrei argued that tax, agency, and liq-

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uidity considerations could not explain these facts, and that the most likely explanation was indeed a combination of noise trading and limited arbitrage. More specifically, he argued, closed-end funds were owned and traded primarily by individual investors, more so than the companies whose securities the funds held, and thus their prices were more likely to be affected by noise trading. Arbitrage by other investors was neither costless nor riskless. A takeover of a fund, followed by a sell-off of the assets, was typically difficult. In short, arbitrage was not sufficient to eliminate the effects of noise trading. In that light, varying discounts were not a puzzle, and the average positive discount reflected the fact that noise trading made closed-end funds more risky than its underlying securities.

The article then provided a clever test of the theory. Under the assumption that noise trading was primarily due to shifts in sentiment among individual investors, the theory suggested that, in periods when discounts among closed-end mutual funds widened, stocks held primarily by individual investors would perform poorly. Given the fact that small capitalization stocks are more heavily held by individual investors, Andrei ranked stocks by capitalization size, and showed that, indeed, discounts widened when small capitalization stocks did poorly.

In another empirical paper, “Contrarian Investment, Extrapolation, and Risk” [16], Andrei, together with Josef Lakonishok and Rob Vishny, documented the presence and the nature of mean reversion. They showed that stocks which were “undervalued”—that is, had low ratios of market prices to some proxy for fundamentals like book value or earnings—consistently overperformed the market thereafter. They created ten different portfolios of stocks for each year in the sample, based on, say, ratios of market-to-book value. Looking at the performance of these portfolios over the following five years, they found that the rate of return on stocks in the lowest decile in terms of market-to-book value had on average exceeded the rate of return on stocks in the highest decile by close to 10 percentage points a year. This

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paper triggered an intense debate about whether these results could be explained by differences in risk. Because one can never be sure one is using the right measure of risk, this debate is unlikely to ever be settled. But in that paper as in later ones, Andrei has shown that the conclusion is robust to the introduction of existing measures of risk.

In his Clarendon Lectures [B3], Andrei reviews the list of anomalies which has been documented by him and by others, and argues that most can be put into two categories. The first category is “underreaction” to news at high frequency, a phenomenon also called “momentum” in the literature. It appears that bond and stock prices do not respond to publicly announced news instantaneously, but rather take a few weeks or even a few months to adjust; the implication is that initial increases in prices are on average followed by further predictable increases in prices. The second category is “overreaction” to sequences of news of the same sign: A sequence of positive news about a company tends to lead to overvaluation. As this overvaluation slowly disappears, realized returns tend to be low. In other words, “glamour stocks” do poorly, and “value stocks” do well. While the initial noise trader model showed the nature of the ingredients needed to generate deviations from the efficient markets hypothesis, it was too crude to give an explanation for this full set of anomalies. This led Andrei to develop two extensions of the original model.

In “Positive Feedback Investment Strategies and Destabilizing Rational Speculation” [9], with Brad De Long, Lawrence Summers, and Robert Waldman, Andrei extended the initial model to allow noise traders to respond to past returns, thus creating a positive feedback from past returns to current demand. This extension could indeed explain the positive correlation of stock prices at short horizons—as noise traders come to the market, increasing demand and prices—and negative correlation of stock prices at long horizons—as prices return to fundamentals. But, in a way, it did this too easily: Any behavior of prices can be obtained with the appropriate

specification of noise trade behavior.

This led Andrei to explore another line of explanation, more directly related to psychological evidence. In “A Model of Investor Sentiment” [23], with Nicholas Barberis and Rob Vishny, he explored what deviations from rationality in expectation formation might generate the pattern observed in asset returns. Based on a review of the relevant psychological evidence, he developed a model in which investors incorrectly see the world as alternating between two regimes. While the true process for earnings is a random walk, investors believe that earnings follow one of two processes, the first one characterized by mean reversion, the second characterized by a trend. Such a structure naturally generates underreaction and overreaction. If investors believe that earnings are mean reverting, one positive shock will not lead them to change their assessment of the relevant regime, and they will underreact. However, a sequence of positive shocks will lead them to conclude that the regime has changed, triggering overreaction. This article is surely not the final word, and reflects the difficulty of convincingly formalizing deviations from rational expectations. But it may be an important step in the integration of behavioral economics and finance.

Andrei has also explored the theoretical and empirical evidence on the limits of arbitrage. Three papers are important here.

Once in a while, one of the stocks included in the Standard and Poor’s 500 disappears, and a new stock has to be included. Inclusion has no information content: Both the criteria for inclusion, and the information about the firm which determine inclusion, are publicly known. However, inclusion automatically leads to purchases of the stock by index funds which replicate the return on the S&P 500 for institutional clients. In other words, inclusion of a stock is like a large positive noise trading shock: a shift in demand with no information content. In an early and influential article (another paper from his Ph.D. thesis), “Do Demand Curves for Stocks Slope Down?” [2], Andrei showed that inclusion had a strong effect on the price: The large

shift in demand was not arbitrated away. The results have been recently extended to 1996. One might have expected increased arbitrage and thus a diminishing effect over time. Interestingly, the effect appears to be getting stronger. A natural explanation is the increased share of index funds in the market.

In 1997, Andrei and Rob Vishny published an article, “The Limits of Arbitrage” [18], which turned out to be prescient, anticipating the 1998 LTCM crisis by more than a year. In that paper, Andrei and Rob focused on the agency problems facing professional arbitrageurs who use other investors’ funds. Suppose that arbitrageurs bet against a particular mispricing, and that the mispricing becomes temporarily worse. This has two implications. The larger current mispricing makes expected future returns even higher, and arbitrage more attractive. But the larger current mispricing also means larger current losses, at least on paper. Not knowing what the arbitrageurs are doing (bad luck or incompetence?), outside investors and creditors may thus take their funds back precisely at the time at which the expected return is largest, forcing the arbitrageurs to liquidate at a large loss. Moreover, such liquidation might further deepen the mispricing. The problems faced by LTCM a year later made clear that the paper had focused on a very relevant issue.

Two themes of the “The Limits of Arbitrage” [18] were that financial constraints may force arbitrageurs to liquidate their position at the worst time, and the liquidation itself might further depress the price. The point that firms in general might have to liquidate assets precisely at those times when these assets were worth the least, and, in the process of liquidation, further depress their price, was the focus of an earlier paper by Andrei, “Liquidation Values and Debt Capacity: A Market Equilibrium Approach” [14], written with Rob Vishny. In that paper, Andrei and Rob argued that the value of the collateral of a firm would vary with market conditions. In bad times, firms with the highest value use for assets might be financially

constrained, and firms with a lower value use but more cash may be the only buyers, leading the collateral assets to sell at a large discount. This paper can be seen as a precursor to the influential “credit cycle” model developed later by Kiyotaki and Moore (1997). Indeed, the discussion of cyclical illiquidity (large discounts in bad times), fire sales, and deep pocket investors, anticipates many of the themes developed in current research.

### 3 Corporate Governance

Andrei’s general approach to this subject is nicely summarized in “A Survey of Corporate Governance” [20], with Rob Vishny. The survey is organized around a basic question: Once the managers of firms have received funds from shareholders or creditors, why do they ever pay investors back? More specifically: How serious are the agency problems? What form does managerial misconduct take? Are large shareholders good or bad? Will the threat of takeovers discipline managers effectively? What difference does the design of laws make to the outcome? Andrei’s research in this field over the last 15 years can be seen as trying to answer these questions, both theoretically and empirically.

Takeovers are often thought of as one of the main mechanisms through which agency problems can be alleviated: Managers who misbehave know the firm might then be taken over and that they might be fired. However, Grossman and Hart (1980) suggested that this mechanism might not work. If existing shareholders concluded that an outsider could indeed take measures to increase the value of the firm, they would insist on selling to that outsider only at a price reflecting this increase in value. But, in so doing, they would eliminate all financial incentives for the outsider to take over. In “Large Shareholders and Corporate Control” [1], written with Rob Vishny, Andrei pointed out the presence of large shareholders modified the Grossman-Hart free-rider result. Large shareholders would internalize the increase in value

of their own shares, and facilitate the takeover. The paper was important in shaping not only the research on takeovers, but also the research on the causes and consequences of concentrated ownership.

Following this lead, in “Management Ownership and Market Valuation: An Empirical Analysis” [5], with Randall Morck and Rob Vishny, Andrei looked at the relation between the proportion of shares held by board members and the ratio of market- to book-value for 370 Fortune 500 firms. He concluded that the relation was increasing for holdings up to 5 percent, decreasing thereafter. He attributed the initial increase to the improvement in agency problems—board members having more of a stake in the performance of the company—and the later decrease to the increased scope for entrenchment by managers. He also found that a large ownership share by the founder was good for value in new firms, but bad for value in older firms, again a finding suggestive of both increased incentives first and entrenchment later. That paper spawned a large empirical literature; the results have stood the test of time and further research remarkably well.

In a controversial article, “Breach of Trust in Hostile Takeovers”, [4], written with Lawrence Summers, Andrei argued that takeovers might succeed not because they led to more efficient production, but because new management might not respect the implicit contracts between the existing management and various stakeholders. Looking at the takeover of TWA by Carl Icahn, he showed that the takeover premium was roughly equal to the present value of wage losses by the three TWA unions: pilots, flight attendants, and machinists. This paper made two important points. First, the increase in the value of the firm during a takeover might not reflect increases in productivity, but rather redistribution of rents. Second, takeovers had to be understood in the context of the complex set of implicit contracts which characterizes modern firms. This paper has influenced the ongoing debate on “stakeholders” and their proper role in corporate governance.

Perhaps one of the most striking aspects of corporate governance is how

different the structure of governance is across countries: Italian companies rarely go public; Germany has a small stock market, but large and powerful banks; ownership of large firms is widely dispersed in the United States and England, more concentrated elsewhere. These facts led Andrei to turn his attention to differences in legal institutions, and how they might affect outcomes.

In “Law and Finance,” [24], with Rafael La Porta, Florencio Lopez-De-Silanes, and Rob Vishny, Andrei assembled evidence on the laws governing investor protection in 49 countries. Using the company and bankruptcy laws of these countries, he constructed measures of shareholder rights—from the presence of one-share-one-vote rules, to the existence of remedies available to minority shareholders, to the possibility of voting by mail as opposed to voting in person—and measures of creditor rights—from whether secured creditors are paid first in liquidation, to whether managers are forced to leave in reorganization, to whether managers are allowed to seek court protection from creditors unilaterally (that is, without creditor consent). He then combined these measures with measures of quality of enforcement of the law from country risk surveys and measures of the quality of the accounting standards to create the first data set quantifying differences in legal rules, as well as in the quality of their enforcement, around the world.

Examining that data set, he showed that legal rules differ enormously across countries. Specifically, the commercial laws of most countries belong to one of four major legal families: common law, French, German, and Scandinavian civil law. Countries from the common law family protect investors—whether shareholders or creditors—the most, and countries from the French civil law family protect them the least (and thus are most favorable to the insiders). As a general rule, countries from the French family (although not France itself, a point on which I feel I must insist) have the weakest enforcement of legal rules. Andrei argued that these differences in institutions—which in many countries have been exogenously

imposed by colonial powers or occupying armies and thus can be taken as largely exogenous—could go a long way in explaining differences in financial structure across countries. Indeed, because the legal origin of laws is predetermined decades, if not centuries, before corporate decisions are made, it has proven to be a very useful instrument in cross-country work using financial variables, as in Rajan and Zingales (1998).

“Law and Finance” also took a first step in looking at the relation between institutions and financial structure. Looking at ownership concentration in the largest public companies in different countries, as measured by the combined ownership stake of the three largest shareholders in each company, Andrei and his co-authors reached two main conclusions. First, the world average of this measure of concentration (taken over the average value among the largest 10 companies from each country) is 46 percent, a much higher number than in the United States (where it is 20 percent). Second, ownership concentration is negatively related both to the quality of shareholders’ protection embodied in the legal rules and to the quality of enforcement of these rules. Apparently, large shareholders appear when investor protection is weak and concentrated ownership is necessary to secure a larger share of the firm’s profit.

This first step was followed by a number of papers, all looking at characteristics of financial markets and their relation to laws. “Corporate Ownership Around the World” [26], written with Rafael La Porta, and Florencio Lopez-De-Silanes, looked at the ultimate ownership of large and medium firms in 27 rich countries, and the relation to investor protection. Working through the pyramids and cross-ownership structure of the top 20 firms in each country—quite an impressive achievement—Andrei confirmed the results obtained in “Law and Finance” [24]. Defining a widely held firm as one in which no ultimate owner had 20 percent or more of the voting rights, he found that only 36 percent of the firms in the sample satisfied this criterion. Many of the others were either controlled by families or by the state. He

also confirmed that the proportion of widely held firms was an increasing function of the degree of shareholder protection.

Andrei and his co-authors are continuing their exploration of the structure of financial markets and its relation to legal institutions. In “Legal Determinants of External Finance” [21], they have looked at the size and breadth of debt and equity markets in 49 countries. Weaker investor protection seems indeed associated with less developed financial markets. In “Agency Problems and Dividend Policies Around the World” [27], they look at dividend payouts in about 4,000 companies from 33 countries. Consistent with an agency view of the behavior of managers, the evidence suggests that higher shareholder protection leads to higher dividends.

It is clear that “Law and Finance” [24] and the papers which have followed will change the nature of research on corporate governance. As Andrei and co-authors have already demonstrated, comparing the nature and the implications of different legal structures across countries allows for much sharper tests of a number of hypotheses. Progress relative to earlier discussions of the “bank finance German model” versus the “equity finance U.S. model” is already evident. This research probably holds one of the keys to understanding larger issues as well, from differences in financial structures across countries, to the general relation between finance and growth.

#### **4 Transition and The Scope of Government**

Having spent his childhood in the Soviet Union, and having focused most of his research on the role of markets and institutions, Andrei was uniquely prepared to think about the issues raised by transition in the Soviet Union and Eastern Europe. In 1991, he was asked by Anatoly Chubais to help with the design of Russian privatization. During the first half of the 1990s, together with a small team that included Maxim Boycko and Rob Vishny, he spent much of his time designing, fighting for, and helping implement

what became known as the Russian “voucher privatization program.”

The approach Andrei followed is presented in “Privatizing Russia” [B1], written with Boycko and Vishny. Its conceptual starting point is the distinction between “control rights” and “cash flow rights” introduced by Grossman and Hart (1986). Under central planning, control rights—that is, the right to make decisions in the firms—had been mostly in the hands of ministries, and to a lesser extent, of company managers. Because neither ministries nor managers had cash flow rights (these belonged to the “Russian public”), their incentives were wrong, and firms were highly inefficient. By decentralizing decisions, the Gorbachev reforms of the 1980s actually made things worse. They led to the emergence of a large number of new stakeholders, each with some control rights: Local governments were now more powerful, and so were company managers and workers. Because these additional stakeholders still did not have cash flow rights, the outcome was worse, not better.

The starting point of any privatization program, Andrei argues, was to recognize the reality of these stakeholders, including ministries, local governments, managers, and workers. Many of the privatization projects in Central Europe in the early 1990s had ignored this reality, and assumed that firms belonged to the state, with the state being free to dispose of them at will. As a result, most privatizations were bogged down, with the existing stakeholders making sure that unless they themselves were compensated, these projects would never be implemented. The challenge was then to design privatization so it would not be blocked by these stakeholders but still achieve an efficient structure of corporate governance.

Following these general principles, the first step of Russian privatization was to implement “corporatization;” that is, to transform firms into joint stock companies, with all the shares still held by the state. The purpose was to reduce the power of ministries, based on the political assessment that they had become weak enough that their stake could simply be eliminated. The

second step was to put local governments in charge of small-scale privatization, and allow them to keep the proceeds. The motivation was to give them cash flow rights in these firms in exchange for giving up control rights in the larger firms. The third step was to give enough to workers and managers that they were willing to go along with privatization. Various options were offered; the most popular turned out to be one which allowed insiders to acquire more than half of the shares in the firms. The fourth step was to give enough to the public that privatization would have popular support. This was the “voucher privatization” part of the plan. Each citizen was given vouchers that could be sold for cash, used to bid for shares, or turned over to private investment funds. The rules governing auctions were kept simple enough that auctions could be implemented quickly. By June 1994, mass privatization was completed. By then, two-thirds of Russian industry was privately held.

“Privatizing Russia” is a beautiful piece of applied (in both senses of the word) economics, and an example of how to think about politically feasible reform. But is Russian privatization a success?

There is no question that things did not turn out as well as the privatizers had hoped. Some of the stakeholders they thought they had bought off proved more resilient than anticipated. Local governments did disappear from the scene. Rather than being sold to strong outside investors, most shares from the voucher privatization have ended up in the hands of the managers and their friends. Their incentives and ability to restructure has been limited. Indeed, in “How Does Privatization work? Evidence from Russian shops” [17], with Nicholas Barberis, Maxim Boycko, and Natalia Tsukanova, Andrei shows, based on a survey of about 450 privatized shops, that only those which have experienced a change in management or a change in ownership (i.e those firms where the principal owners were not the previous managers or workers), have experienced significant restructuring. Depoliticization has also been limited; indeed, in some cases, privatization

has increased the political power of managers, making it easier for them to extract rents from the state. In short, Russian privatization is an illustration of the conclusions from Andrei's work on corporate governance around the world: Privatization is essential but it is not enough. What is also needed is good corporate governance, and this is much more difficult to achieve.

The relevant question however is whether, as some have suggested, there was, then and there, a better way. Given the political constraints, the only feasible alternative was probably no privatization—a holding pattern for firms until other institutions were built, and better corporate governance could be established. It is far from obvious that the outcome would have been better. As the experience of Ukraine suggests, it would probably have led to even less restructuring, especially in small firms. And it would surely have made the commitment to the reform process less credible. Time will help answer the question, but in the absence of a clear counterfactual, the debate is likely to continue.

Andrei's work on privatization is probably his most important contribution to the economics of transition. But a number of other contributions have been influential as well.

In "The Transition to a Market Economy: Pitfalls of Partial Reform" [13], with Kevin Murphy and Rob Vishny, Andrei focused on another reason why the Gorbachev reforms had made matters worse rather than better. To the extent that suppliers were now freer to sell to private firms at market prices, but could only sell to state firms at state prices, state firms were more likely to suffer from shortages than before. The result could well be an overall reduction in output, rather than an increase. In contrast, the central government in China kept tighter control of suppliers and could more easily impose minimum delivery quotas on suppliers to state firms, thus avoiding the overall decrease in output.

In "Corruption" [15], with Rob Vishny, Andrei pointed out another implication of having a weak government during transition, namely the emer-

gence of competition for rents by individual bureaucrats. Because each bureaucrat ignored the influence of his bribe on the bribes of others, such competition, he argued, would lead to very high levels of corruption, and kill or drive underground private activity. In “The invisible hand and the grabbing hand” [19], with Timothy Frye, Andrei showed that, based on a survey of shops in Warsaw and in Moscow, shops in Moscow were indeed subject to many more inspections than their Warsaw counterparts, suggesting one reason for the faster development of the private sector in Poland.

In “Without a Map: Political Tactics and Economic Reform in Russia” [B2], with Daniel Treisman, Andrei extended the stakeholder approach to analyze not only privatization but also other aspects of transition in Russia, including the gyrations of macro-stabilization. Together with “Privatizing Russia”, this book shows how fruitful the stakeholder approach can be to the analysis and the design of reform. They are likely to have an impact which goes far beyond the analysis of transition.

In the past few years, Andrei has extended his focus beyond the issues of transition to look at the role of the government more generally.

In “The Proper Scope of Government: Theory and an Application to Prisons” [22], Andrei and Rob Vishny have joined forces with Oliver Hart, applying the incomplete contracting approach developed earlier by Hart to think about the pros and cons of government ownership. They think of goods as having two main dimensions, cost and quality. In general, they argue, private providers are likely to have stronger incentives to lower cost and improve quality than government employees. But to the extent that quality is hard to measure, either by the government or by the consumers of the good, and to the extent that reductions in quality can yield reductions in cost, private providers are also more likely to provide too low a quality level. Using this framework, they look at the range of goods typically provided by governments, focusing in particular on the case of prisons. Their conclusion is that government ownership of prisons is appropriate. The main contribu-

tion of the paper is methodological, showing how the incomplete contract approach can be used to think about the role of the government.

Another important paper is “The Quality of Government” [25], with Rafael La Porta, Florencio Lopez-de-Silanes, and Rob Vishny. Building on their work on “Law and Finance” [24], the authors try to identify some of the factors which determine differences in the nature and the efficiency of governments across countries. To do so, they first construct for 50 to 150 countries (depending on the variable) a number of quantitative measures of government performance, from measures of interference with the private sector (a property right index, a business regulation index, the top tax rate), to measures of efficiency in the provision of government services (corruption, bureaucratic delays, tax compliance, relative wages in the public sector), to measures of output of public goods (infant mortality, illiteracy rate, infrastructure quality), to measures of size of the public sector (transfers and subsidies, government consumption, as ratios to GDP, state owned firms as share of the economy, ratio of public sector employment), to measures of political freedom (democracy index, political rights index). As potential determinants, they construct measures of ethnolinguistic fractionalization, legal origin, religion, and economic geography (latitude), and development (GNP per capita).

Much of the value of such a gigantic exercise in data construction comes simply from looking at the basic statistics. A number of cross country correlations are indeed very interesting. For example, looking at correlations across measures of government performance, the top tax rate appears roughly uncorrelated with the property right index; larger governments are typically better governments; ethnically homogeneous countries, common law countries, and Protestant countries have better governments. The strongest result is perhaps that French legal origin is typically associated with a worse quality of government.

Like the vast body of growth regressions, the paper leaves one with

mixed feelings, the feeling that quantification is essential, but also that the sheer number of potential explanatory variables, the poor measurement of many of these variables, and the simultaneity issues will always make it very difficult to reach strong conclusions. The lesson from more than a decade of growth regressions is however that, while such regressions have rarely proven causality, they have allowed for a more informed discussion. The same is likely to happen here.

## 5 From Russia to America

What explains Andrei's amazing drive and enthusiasm for life? The empirical evidence suggests an explanation based both on both nature and nurture.

Andrei was born in 1961 in Moscow. His father and his mother were both engineers, a profession chosen for them by the state. (Andrei's views on the waste of talent under central planning is the motivation behind "The Allocation of Talent. Implications for Growth" [12], with Kevin Murphy, and Rob Vishny.) That he was an ambitious young boy is clear from the photograph, which shows him dressed as a Soviet army general at the age of six. When he was in grade school, his best friend transferred to one of the best schools in Moscow, School Number 2. Andrei took his bicycle, went to the school, and did not leave until he had convinced the principal to admit him.

In 1976, his parents left Russia with the help of the Hebrew Immigrant Aid Society. After five months in Italy, they moved to Rochester, New York, where Andrei attended a not very good inner city high school. There, a minority recruiter stumbled upon Andrei, and Andrei was accepted at Harvard. Andrei claims that at that point, most of his English had come from watching Charlie's Angels, and it is said—but I have been unable to confirm it—that his verbal SAT score was one of the lowest in Harvard's

history.

During his sophomore year at Harvard, Andrei went to see Lawrence Summers, then an assistant professor at MIT, now the U.S. Secretary of the Treasury, to call attention to what Andrei thought was a crucial flaw in Summers's research. While characteristically unimpressed by the argument that his work contained flaws, Larry was sufficiently impressed to hire Andrei as his research assistant. What followed has been a long period of close friendship and mutual education, and Larry's influence on Andrei's research—from the focus on big issues, to the simple modelling, to the attention to facts—is a very strong one.

After graduating from Harvard in 1982 with a degree in Mathematics, Andrei went to graduate school at MIT, receiving his Ph.D. in economics in 1986. The same year, Andrei moved to Princeton, only to move to Chicago in 1987, and back to Harvard in 1991. Since then, his presence in Cambridge has been unmistakable.

One of the greatest pleasures of an academic career are the intellectual friendships one develops over time. One of mine has been my friendship with Andrei. Since 1980, when he took my graduate macroeconomics course as an undergraduate, we have argued about every issue imaginable, from the papers submitted to *Quarterly Journal of Economics* (which we both co-edited throughout the 1990s), to the wisdom of the privatization program in Russia, to the future of macroeconomics, to more mundane issues such as why life is so nice in Provence. I have enjoyed every moment of it.

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**Table 1. Books and Papers****Books.**

B1. *Privatizing Russia* (with Maxim Boyko and Robert Vishny), Cambridge: MIT Press, 1995.

B2. *Without a Map: Political Tactics and Economic Reform in Russia* (with Daniel Treisman), Cambridge: MIT Press, 1999.

B3. *Inefficient Markets. An Introduction to Behavioral Finance*, Clarendon Lectures, Oxford University Press, 2000

**Articles**

1. “Large Shareholders and Corporate Control” (with Robert Vishny), *Journal of Political Economy*, June 1986, 96, 461-488.

2. “Do Demand Curves for Stocks Slope Down?”, *Journal of Finance*, July 1986, 41, 579-590.

3. “Implementation Cycles”, *Journal of Political Economy*, 1986, December 94, 1163-1190.

4. “Breach of Trust in Hostile Takeovers” (with Lawrence Summers), in Alan Auerbach ed., *Corporate Takeovers: Causes and Consequences*. Chicago: University of Chicago Press, 1988, 33-59.

5. “Management Ownership and Market Valuation: An Empirical Analysis” (with Randall Morck and Robert Vishny), *Journal of Financial Economics*, 1988, 20, 293-315.

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7. “Industrialization and the Big Push” (with Kevin Murphy and Robert Vishny), *Journal of Political Economy*, October 1989, 1003-1026.

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14. “Liquidation Values and Debt Capacity: A Market Equilibrium Approach” (with Robert Vishny), *Journal of Finance*, September 1992, 47, 1343-1366.

15. “Corruption” (with Robert Vishny), *Quarterly Journal of Economics*, August 1993, 98, 599-617.

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16. “Contrarian Investment, Extrapolation, and Risk” (with Josef Lakonishok and Robert Vishny), *Journal of Finance*, December 1994, 49, 1541-1578.

17. “How Does Privatization Work? Evidence from Russian Shops” (with Nicholas Barberis, Maxim Boycko, and Natalia Tsukanova), *Journal of Political Economy*, 1996, 104-6, 764-790.

18. “The Limits of Arbitrage,” (with Robert Vishny), *Journal of Finance*, March 1997, 52, 35-55.

19. “The Invisible Hand and the Grabbing Hand” (with Timothy Frye), *American Economic Review*, May 1997, 87, 354-358.

20. “A Survey of Corporate Governance” (with Robert Vishny), *Journal of Finance*, June 1997, 52, 737-783.

21. “Legal Determinants of External Finance” (with Rafael La Porta, Florencio Lopez-de-Silanes, and Robert Vishny), *Journal of Finance*, July 1997, 52, 1131-1150.

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23. “A Model of Investor Sentiment” (with Nicholas Barberis and Robert Vishny), *Journal of Financial Economics*, 1998, 307-343.

24. “Law and Finance,” (with Rafael La Porta, Florencio Lopez-De-Silanes, and Robert Vishny), *Journal of Political Economy*, December 1998, 106, 1113-1155.

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**Footnotes**

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