

Greed, deception, and willing ignorance: the anatomy of the asset-backed commercial paper crisis

Edwin H. Neave

Professor Emeritus, Queen's School of Business

Lewis D. Johnson

Professor of Finance, Queen's School of Business

Abstract

This paper analyzes the economic incentives operating in Canada's asset-backed commercial paper market and uses them to explain the 2007 redemption crisis. After outlining the ABCP market and the crisis, the paper examines details of ABCP and the players involved. It then outlines a transaction economics theory of financial governance that is used both to identify the causes of the crisis and to propose changes intended to make a recurrence less likely. We identify the contributing causes as a misalignment of transaction attributes with governance capabilities, compounded by the presence of perverse incentives. Our analysis suggests that several of the current proposals for restrictive regulation are unlikely to improve future situations. At the same time, we also argue that changes in existing incentives could contribute to more effective future governance.

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Commercial paper is issued by large financial and non-financial companies to finance short-term borrowings, usually with maturities of 90 to 180 days, but sometimes extending up to one year. The issues are typically unsecured, but their redemption risk¹ may be wholly or partially offset by a bank line of credit or compensating balances. In contrast, asset-backed commercial paper (ABCP) is a form of short-term borrowing used mainly by debtors whose credit ratings do not qualify them for ordinary commercial paper issues. Like longer-term mortgage-backed securities, asset-backed commercial paper is issued on the security of an underlying asset portfolio composed of such instruments as accounts receivable, car loans, or credit card debt. Typically a company or group of companies looking to enhance liquidity will either sell or pledge the underlying assets to a conduit (organized as an independent trust), and the conduit will in turn sell issues of commercial paper to investors. The conduit paper is backed mainly by income from the underlying assets.

ABCP is not normally traded after it has been issued. However, short maturities mean that conduits must rely on continued refinancing from existing investors (rollovers). Conduits must also find new investors to fund additional growth and to replace existing investors who do not wish to renew. To mitigate rollover problems, some conduits arrange for backup liquidity in case of market disruption². Some issues are also backed by third-party repayment sources and in this way the issuers attempt to enhance the quality of the paper. Nevertheless the paper's liquidity, default, and other risks are all factors tending to increase ABCP yields³ relative to other forms of short-term paper.

Default risk is the most prominent of the foregoing factors, since investors acquire claims on portfolios of lower-quality assets with opaquely defined values. Liquidity risks stem from maturity mismatches between the underlying assets and ABCP issues on the one hand, and from the ability of the conduit to sell new paper on the other. Investors can also be exposed to operational risks if the conduit runs into difficulties managing the assets and their financing. Finally, they can face structural risks if the conduit becomes entangled in such legal proceedings as bankruptcy actions. The leverage of many ABCP products magnifies the effects of all these risks.

Structured investment vehicles (SIVs) account for one-third to one-half the amount of ABCP issues. SIVs are used to take advantage of tax or accounting features, to seek profit from credit spreads between short-term debt and long-term asset-backed securities (ABS), or both. Some SIVs acquire portfolios composed wholly or partly of derivatives rather than loans or debts. Like other forms of ABCP, SIV assets are typically held off balance sheet by their

originating banks or investment houses, allowing the SIV to lever more highly than a parent company facing stricter capital requirements. SIVs are less regulated than other investment pools, and little is publicly known about their specifics, including the nature of the assets they hold. The opaqueness of SIV asset values and the liquidity difficulties SIVs faced in refinancing have both contributed to losses that caught many investors offguard⁴.

Ordinary commercial paper and ABCP are both rated by bond rating agencies. The Canadian ABCP market has been characterized as unique in that the bank liquidity and credit guarantees provided to non-bank issuers were regarded by American bond rating services as being too vague to permit issuing an opinion. Only the Dominion Bond Rating Service rated the issues, and since the securities represented new and unfamiliar challenges to DBRS, the potential for incorrect ratings was higher than with more traditional instruments. Nevertheless most of the ABCP issues sold to investors⁵ received high ratings from DBRS, contributing to investor confidence and reducing the risk premium from what it would otherwise have been.

The global credit crunch and the liquidity crisis following the U.S. sub-prime mortgage meltdown⁶ affected financial markets worldwide and Canada's ABCP market was no exception. First, in mid-2007, banks and other financial institutions throughout the world essentially stopped lending, even to each other. Second, investors everywhere became more sensitive to their risk exposures and deserted such assets as the opaque and risky ABCP issues. Third, a portion of ABCP issues held either U.S. residential mortgage participations or derivatives written on them, contributing further to investor fears regarding paper quality. The end result was that ABCP issuers could not roll over their paper as it became due, and the Canadian non-bank sector⁷ was essentially shut down in August 2007. At face value, investors were left holding billions of dollars worth of frozen paper. However, illiquidity and opacity of the paper meant that market values were indeterminate, although likely to be far below face value. Falling market values led to margin calls for leveraged products, further compounding the issuers' liquidity difficulties. If issuers sold assets at a loss in response to liquidity pressures, their capital positions were also impaired.

The asset-backed commercial paper market

As the foregoing overview has suggested, ABCP shares its name but little else with traditional commercial paper. A bank or other sponsoring institution sets up a conduit (usually organized as an independent trust), which sells ABCP either directly to large inves-

1 In the rest of the paper redemption risk (a common term in the industry) is referred to as liquidity risk, i.e., the risk of receiving maturing repayment with more than minimal delay. Default risk refers to the risk of receiving less than the maturing paper's face amount.

2 As will become evident below, the notion of market disruption is not well specified.

3 Although as shown below, the presence of numerous intermediaries, each with its own profit-seeking motive, results in sub-optimal yields for the risks borne.

4 They gained much attention during the housing and sub-prime fallout of 2007; tens of billions in the value of off-balance sheet SIVs was written down as investors fled

from sub-prime mortgage related assets. Some of the derivative-based SIVs have been and are also vulnerable to counterparty risk.

5 Conduits sometimes kept the riskier (non-rated) tranches in-house, paying themselves a higher yield. Financing these retentions further contributed to the conduits' high leverage.

6 For an analysis of the sub-prime mortgage meltdown, see Johnson and Neave (2008).

7 Bank-sponsored paper, as discussed below, was supported by the sponsoring banks when other purchasers could not be found.

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tors or indirectly through dealers like banks and money market funds. The funds are used to finance positions in portfolios composed of assets like mortgage loans, trade credit, or credit card debt. As security, the conduit either acquires title to the underlying assets or requires them to be pledged as collateral. Conduits may arrange bank guarantees to provide emergency liquidity funding in the case of general market disruption. Still further, conduits may offer credit enhancement in the form of agreements with third parties to absorb part or all of the asset portfolios' default risks.

The structure of an ABCP program is outlined in Figure 1. To elaborate, we consider how the Figure illustrates a partially-supported bank-sponsored multi-seller program, one of the most common types. Many bank-sponsored programs have been employed to provide working capital financing to bank clients. Each of the debtors in Figure 1 either sells or obtains advances against accounts receivables or other monies owed to them. These underlying assets are then aggregated by a seller who deals with the conduit. The conduit advances funds to the sellers and, as security, the underlying assets are either sold or pledged to the conduit. In the case of sales both asset title and default risk are assumed by the conduit⁸. In the case of advances to the seller, the underlying assets are pledged as security and the seller usually retains the default risk⁹. To fund the transactions, the conduit sells ABCP to investors, either through a broker or through in-house sales staff. The conduit owner will usually be the sponsoring bank, which enters the arrangement mainly to profit from financing clients' positions off the bank's balance sheet. The arrangement both reduces the bank's required regulatory capital and, in addition, formally limits its liability to its equity investment in the conduit. The arrangement thus isolates the sponsoring bank from the underlying assets' default risks, although for reputational reasons the bank may assume responsibility for conduit liabilities¹⁰. In addition, the sponsor receives commissions for the transactions it arranges.

The key differences between commercial paper and ABCP stem principally from the quality and number of the underlying debtors. The risks inherent in traditional commercial paper are customarily minimal and easily identified by rating agencies and investors. With ABCP the risks are greater, more difficult to identify, and more diverse. The underlying assets can be ill-defined and may consist of opaquely-valued loans or in some cases derivative instruments administered by the conduit. Moreover, the conduit's short-term borrowings are frequently used to finance long-term assets, creating mismatches that exacerbate both liquidity and default risks¹¹. To offset liquidity risk, the conduit will attempt to arrange for emergency short-term financing (from a liquidity provider such as a bank) to be drawn upon if it experiences difficulty in rolling over

maturing issues. The conduit may also arrange various forms of credit enhancement to decrease the paper's default risk. In some cases, the default risk may be sold off using credit default swaps or similar instruments, altering the ultimate responsibility for absorbing defaults. The conduit's financing is often leveraged and its own ability to absorb losses is limited to its capital. These features make it difficult for both rating agencies and purchasers of the paper to assess the paper's risks.

ABCPs initially appeared in the U.S. during the mid-1980s, and the first Canadian issue was sold in 1989. By mid-2007 the Canadian ABCP market had grown to roughly the same size as the traditional commercial paper market. Derivatives-based funds showed the most rapid growth, increasing from \$5 billion in 2003 to \$35 billion in 2007. The viability of the ABCP market could only be sustained by continuing infusions of funds and when funds dried up in mid-2007, the market collapsed. At that time structured investment vehicles were estimated to have a face value of some \$110-\$120 billion, representing nearly a third of the Canadian ABCP market's total outstanding issues.

ABCP programs were sponsored by both banks and non-bank entities. Bank-sponsored issuers relied on the banks' reputations to survive the crisis and sometimes obtained bank financing of rollovers. This made it possible for the banks to claim there was no market disruption and hence no need to meet backstop commitments to non-bank issuers. The non-bank issuers are smaller, less diverse companies, and do not themselves have sufficient capital to redeem frozen ABCP. In August 2007, their liabilities were estimated at face value to be about \$40 billion. Non-bank issuers are not regarded as public firms and consequently do not fall under the jurisdiction of securities regulators. And nor are they classed as financial institu-

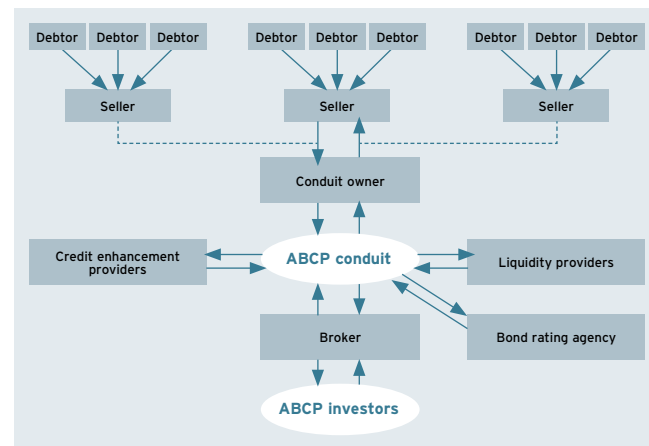


Figure 1 - Asset-backed commercial paper

8 Exceptionally in the case of sales with recourse, default risk can remain with the seller.

9 Transfers of the default risk to other parties are sometimes arranged.

10 For example, when bank-sponsored conduits experienced difficulty in rolling over their paper, the sponsoring bank sometimes took up the issue.

11 The two can interact. In the event of a liquidity problem, a conduit may attempt to raise liquidity by selling assets into a down market at unfavorable prices. The resulting capital losses will then often exacerbate the original liquidity problem.

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tions, subject to scrutiny by the Office of the Superintendent of Financial Institutions (OSFI). As mentioned earlier, the backstop provisions for the Canadian non-bank ABCP were seen as too vague and too general for U.S. bond rating agencies to issue an opinion on. Only DBRS was prepared to rate these issues, which did not give investors a second opinion (a standard fiduciary requirement for many investors)¹².

Ironically, OSFI contributed to the backstop problem through issuing guidelines (Regulation B-5, 1994) for bank-promised support to non-bank ABCP conduits. At that time OSFI was concerned that banks were not setting aside sufficient capital reserves for this purpose. However, rather than requiring larger capital charges, OSFI insisted that banks would only provide assistance in the case of a general market disruption. The provision reduced the likelihood that banks would ever have to provide funds, even though they received fee incomes from providing the guarantees. Investors who bought non-bank issuers' paper relied mainly on DBRS assessments and the advice of their brokers or mutual fund advisors¹³. Investors who bought the paper from brokers or fund managers might have recourse to the sellers and the Investment Dealers Association on at least two grounds. They might argue that they received inadequate investment advice from their brokers and were thereby induced to take risks they did not understand. In some cases they might also argue that fund managers who sold them some SIV issues violated derivatives prohibitions.

There are many players in the ABCP market: debtors, sponsoring bank and non-bank issuers, conduits, brokers, regulators, DBRS, and investors. Each has some responsibility for the present liquidity difficulties. After outlining our theory in the next section, we will return to the incentives facing the players and assess what changes might be made to reduce the likelihood of similar future crises.

Financial governance

The theory of financial governance [Allen and Gale (2000), Carlin and Mayer (2003), Johnson and Neave (1992, 1994), Neave (2005), Williamson (1996)] holds that financiers and their clients seek cost-effective ways of aligning financings' attributes with financiers' capability to govern them. This paper studies alignment questions in the particular dynamic setting of the ABCP market's growth and subsequent decline. For reference, an Appendix sketches a generalized version of the static theory.

Dynamics of bank-borrower transaction

We first discuss how the dynamic theory of financial governance applies to negotiations between a bank and a borrowing client who deals directly with the bank. Subsequently, we show how the same dynamic theory applies to transactions between other agents who are party to an ABCP program. In times of change, finding an appropriate match of a bank's governance capabilities with the attributes

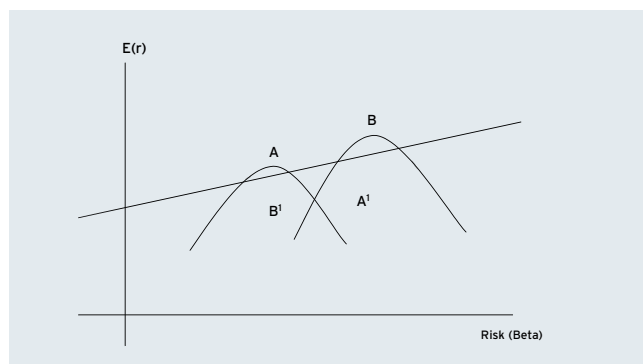


Figure 2 - Governance and non-market portfolio returns

of a new type of loan or investment is an evolutionary process characterized by misalignments that, after emerging, may subsequently be corrected. In particular, risk-bearing and risk control are determined adaptively subject to an ongoing search for cost-effectiveness. During this period of adaptation, governance mistakes are more likely to occur and resulting losses likely to be higher than in a period where new transactions are not emerging.

Emerging alignment problems are more likely to be recognized by the original lenders when they assume part or all of the default risks and when their profits are likely to be affected by any subsequent defaults. Emerging alignment problems are far less likely to be recognized if assets are securitized and the default risks are passed on to a conduit. In this case bank incentives to screen and monitor the risks are correspondingly attenuated. The risks become still harder to recognize, and the incentives to screen and to monitor still more attenuated, if in turn the conduit passes on some or all of the risks, either to third-party guarantors or to purchasers of the conduit's paper. The most obvious signs of this kind of dynamic evolution are rapid growth of a new market, high and rising short-term profits, evidence of competitive pressures, and the use of complex instruments that give the illusion of eliminating risks while in fact merely redistributing them. Maintaining the illusion may be fostered by robust demand for the securities and by competitive pressures to satisfy the demands.

The dynamics of changing risk can add further to any original misalignment. If risks are increasing, financier capability needs to be increasing commensurately if the emerging defaults are to be adequately controlled. This is especially the case when the opacity of asset values actually presents Knightian uncertainty rather than familiar forms of risk¹⁴. Uncertainty is particularly likely to be prevalent when asset values can be affected by unpredictable third-party reactions, such as in the case of liquidity pressures leading to asset selloffs at sacrifice prices in declining markets.

To develop the main concept underlying our analysis, we outline

12 The liability of brokers who sold inappropriately rated paper to investors does not yet seem to have been explored.

13 In addition, the market stability activities of the Bank of Canada provide general market oversight.

14 Knightian uncertainty arises when unfamiliarity with a transaction makes it difficult to generate quantitative estimates of asset value.

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the dynamics of adjusting capabilities to align them with increasing risk. Consider a portfolio whose average risk is indicated by point A in Figure 2. The straight line in the diagram, the security market line, indicates the risk-return tradeoffs available in the securities market. The portfolio of original mortgages, however, is administered by an intermediary and is not at this point regarded as a marketable security¹⁵. The left-hand curve indicates the effective rates of return obtainable on a mortgage portfolio by a lender whose capabilities for risk control are matched against the average risk shown by point A. The effective rate of return curve rises as loan risk¹⁶ is increased to point A, reflecting the increased earnings available on loans of greater risk if the lender has the capability to control those risks. The curve falls after point A, reflecting that if loans of too great a risk are taken on, the realized defaults will eventually rise and the net earnings on the loans will diminish. In other words, a lender whose risk control capabilities are matched against point A will maximize the return on his/her portfolio if he/she makes loans whose average risk is measured by point A. At that point his/her return will exceed the return given by the capital market line because intermediated loans require more expensive governance than do capital market securities, and consequently portfolio earnings must be higher to defray the greater governance costs¹⁷.

Now consider a loan portfolio whose average risk is B, greater than A. If the original lender with capacity A were to assume this portfolio, he/she would suffer greater default risk than anticipated and his/her expected earnings would fall below the capital market line as shown by point A¹ on the left-hand curve. On the other hand, a lender with greater risk control capability B, who moves along the right-hand curve, would profit from this loan portfolio in the same way that the lender with capability A profited from the first portfolio. B's greater risk control capability can be attained by increasing the stringency of application procedures, by more aggressive pursuit of loans whose repayment was falling behind schedule, and by more aggressive pursuit of defaulting borrowers. Both the interest rates charged by lender B and the costs he/she incurs would be higher than they were for A. Note, however, that the cost of B's additional governance capabilities are also higher, so that B would lose money if it were to manage a portfolio of loans with average risk A (as noted at point B¹).

So far we have only analyzed a situation in which the lender does not securitize or sell the original loan portfolio. However, a similar analysis could be done for the group of agents involved in originating, securitizing, and investing in the securitized portfolio. The main difference is that the default risks are now spread among agents, and those agents may also pursue defaulters less aggressively. Consequently the agents' combined incentives to improve risk control procedures are attenuated, as indeed are their capabilities to do so.

The main device for guarding against an emerging misalignment of risks and risk control capabilities is to make sure appropriate incentives are in place. In the case of risk control, the most effective incentive is to ensure that each of the parties has clearly defined obligations to assume at least part of any losses in contracts they originate or transmit. If the transaction involves passing some risk on to investors it is important to ensure that they are appropriately warned and that they formally acknowledge receipt of the warnings regarding the extent of the risks they are taking.

Analysis

This section identifies some of the perverse incentives that affected the ABCP market and then shows how altering these incentives would reduce the risk of the problem's recurring.

Perverse incentives

Banks create conduits to limit their capital requirements and are hence currently encouraged by regulation to arrange off-balance-sheet lending. Moreover, if they do not bear any of the default risks assumed by a conduit, originating banks have little incentive to screen for those risks in the first place or to provide continued monitoring to limit the risks. Indeed, banks may actually face incentives to expand this type of business without much regard for risk control, since they realize fee income from each new or increased sponsoring arrangement and they do not face either capital requirements or possible write-off risks. Non-bank sponsored conduits strive to emulate their bank counterparts, but are not regulated in the same way, do not face the same capital requirements, and do not have access to reputation-based capital financing from their sponsors. Their failures represent the most egregious problems presented within the ABCP market.

The conduits strive to enhance profits for their owners, hence their incentives to lever. Leverage increases their susceptibility to liquidity and default risks. Moreover, if the conduits are able to arrange credit and liquidity enhancement at any degree of leverage, their incentives to lever and to rely on low-quality assets are increased. Brokers and other agents selling the paper are motivated by commissions and rely on rating agencies for the quality of their advice. If they do not incur any liability for recommending unusual transactions, they have little incentive to advise clients of any unusual risks.

Investors are motivated by apparently lucrative returns on highly rated instruments. Unless they are sternly reminded, they rarely account for the principle that higher returns are likely to mean higher risks. They are likely to accept broker advice and DBRS ratings quite uncritically.

It is clear that a combination of profit-seeking with little regard to risk (by all parties), accompanied by failures to provide fuller disclosure (by all parties down to but not including investors), DBRS

¹⁵ Securitization will involve issuing marketable instruments against the non-marketable portfolio.

¹⁶ Here assumed to be measured by beta, the covariance of return with a market index, standardized by the variance of market return. Such measures are easy to interpret conceptually, but may be difficult to establish in markets with various forms of non-traded assets.

¹⁷ See, for example, Freixas and Rochet (1998). The authors and the references they cite model intermediated transactions as being more costly than capital market transactions.

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inexperience in rating new instruments, and the failure of investors to recognize risk-return tradeoffs, possibly exacerbated by inappropriate sales tactics on the part of brokers and mutual fund administrators, all contributed to the present difficulties. Our discussion in the previous section highlighted how theory explains this outcome. We turn now to more concrete proposals for change.

Proposals for change

With respect to Canada's ABCP problem, the principal focus has been on reactivating the frozen paper market, and particularly the non-bank-sponsored portions of it. A committee of lawyers and financiers has been working on convincing investors to trade in their short-term paper for longer-term bond-like instruments. The committee hopes the new instruments will be tradeable in the short term and ultimately redeemable in the longer term. Some recent initiatives aimed generally at protecting against future credit crises can be related to the narrower ABCP problem¹⁸. For example, in a move representative of the 'tougher regulation' school of thought, the U.S. Treasury Secretary has recommended streamlining the U.S. regulatory system into three 'objectives-based' agencies, with the Federal Reserve looking after overall market stability, a prudential regulator for banks and thrifts, and a business-conduct agency [Johnson and Neave (2003)].

We do not advocate the 'tougher regulation' school of thought, although we do recommend some particular regulatory initiatives below. As a general matter, we believe that most indiscriminating attempts to enhance regulatory effectiveness are unlikely to be successful. To quote *The Economist* (April 3, 2008): "It would be convenient to blame the regulators ... but the system is stacked against them. They are paid less than those they oversee. They know less, they may be less able, they think like the financial herd, and they are shackled by politics. In an open economy, business can escape a regulatory squeeze in one [jurisdiction] by skipping [to another]. Once a bubble is inflating many factors can conspire to discourage a regulator from pricking it." The foregoing does not rule out a need for particular regulations, and nor does it imply that the financial system will fail to respond to changes in incentives. One of the regulations we do support calls for more disclosure regarding the financing of conduits selling paper to the public. The so-called Financial Stability Forum is emphasizing more transparent disclosure by financial institutions on the risks they are bearing and improved valuation techniques for poorly performing assets. But these recommendations for angelic governance [Barth et al. (2006)] are fruitless unless otherwise supported: without changing the incentives to supervise and control risks, the proposals are likely to be ineffective.

We do support the 'tougher regulation' approach insofar as it calls for all conduits that sell paper to the public¹⁹ be deemed to be financial institutions and to come under the scrutiny of OSFI. Capital

requirements for all conduits should be the same as for bank loans. Conduits should be treated as affiliates of a parent financial institution that is liable for their obligations. Any bank guarantees issued to non-bank-sponsored conduits should be enforceable.

With respect to changing incentives, a proposal to ensure that conduit sponsors would retain a proportion of default risk when they locate assets in conduits would prompt them to screen and to monitor default risks more carefully than they now do. Again with respect to changing incentives, brokers should publicize the commissions they receive on the sales of different instruments they market. Part of their advice should be to remind investors that higher returns are a reliable signal that higher risks are being borne. Brokers who fail to give appropriate cautionary advice should be subject to legal penalties and the possibility of incurring liability for investor losses. Finally, rating agencies can be given appropriate incentives as well. Unless they can demonstrate that they exercised due diligence in customary ways, they should incur liabilities for ratings that subsequently turn out to be erroneous. They should reveal the incomes they are receiving from rating different classes of instruments.

Conclusion

The ABCP crisis arose as a result of greed, deception, and willing ignorance. The proximate cause of the crisis was the credit crunch ensuing from the sub-prime mortgage market meltdown, but the bubble was unsustainable in the longer term due to the factors discussed in this paper. Our theory of financial governance highlights the role of perverse incentives and points the way to better governance of such markets in the future.

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18 Major central bankers have been injecting liquidity into the system and lowering interest rates in an attempt to facilitate inter-bank, and hence bank-borrower, loans. These initiatives are, of course, intended mainly to deal with the current liquidity crisis rather than with future events.

19 Conduits that only sell their paper to large institutional investors could be exempt from these provisions.

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Appendix: static theory of financial governance

The theory identifies three main classes of governance structure: markets, intermediaries (hybrids), and hierarchies, each with different capabilities for governing transaction attributes. Each class has differing combinations of governance capabilities, and consequently applies them to differing combinations of attributes.

Types of governance structures

- **Markets** are well suited to complete contracting, such as transactions (henceforth deals) in which there is little perceived need for adjustment of the initial arrangement. These kinds of deals are typically extended under risk rather than under Knightian uncertainty, where uncertainty means inability to quantify the nature of possible losses inherent in a transaction. Parties to successful market transactions usually have equal access to the same forms of deal information.
- **Intermediaries** offer a governance advantage relative to markets, since they have both greater initial screening capabilities and greater capabilities for monitoring and control. They have some ability to adjust contract terms during the course of the deal, and can rectify past errors more cost-effectively than market agents, since the latter's principal means of effecting an adjustment is to sell out a position.
- **Hierarchical** (internal) governance offers the greatest potential for intensive screening, continued monitoring, continued control over operations, and adjustment of deal terms. Internal governance will normally be used to govern deals whose uncertainties are greater than those acceptable to intermediaries, such as in cases of incomplete contracting.

Attributes, capabilities, and static alignment

The theory is summarized in Figure A1. Moving from left to right in the attributes section of the Figure represents increasingly greater informational differences between the two parties (the financiers typically having less information). Increasing informational differences are seen as involving higher degrees of risk or as presenting uncertainty instead of risk. The higher-risk and more uncertain deals pose greater need for continuing governance, not least because they can present increasing costs of default. Uncertainty and asset illiquidity render valuations more difficult than they are for risky, liquid assets. The second section of Figure A1 specifies the principal capabilities of financiers and indicates that different governance structures utilize different combinations of capabilities. For example, hierarchical governance offers greater monitoring and control capabilities than market governance. The third section is a reminder that greater capabilities are normally acquired and exercised at increasing cost.

As shown by the relations between the different sections of Figure A1, deals' attributes are matched against different governance capabilities in attempts to achieve cost-effective governance. Striving for cost-effective governance means that each party to a deal only acquires costly governance capabilities to the extent necessary to control their own loss possibilities: they do not enhance governance to offset other parties' possible losses. Market deals tend to be more standardized and to have smaller informational differences among the parties. The governance costs of market deals are relatively low, mainly because market governance uses relatively few monitoring and control capabilities. The costs of hierarchical governance tend to be higher, because of its greater monitoring, control, and adjustment capabilities. Thus financings under uncertainty are likely to have higher governance costs, which must be compensated for by higher returns on the investment.

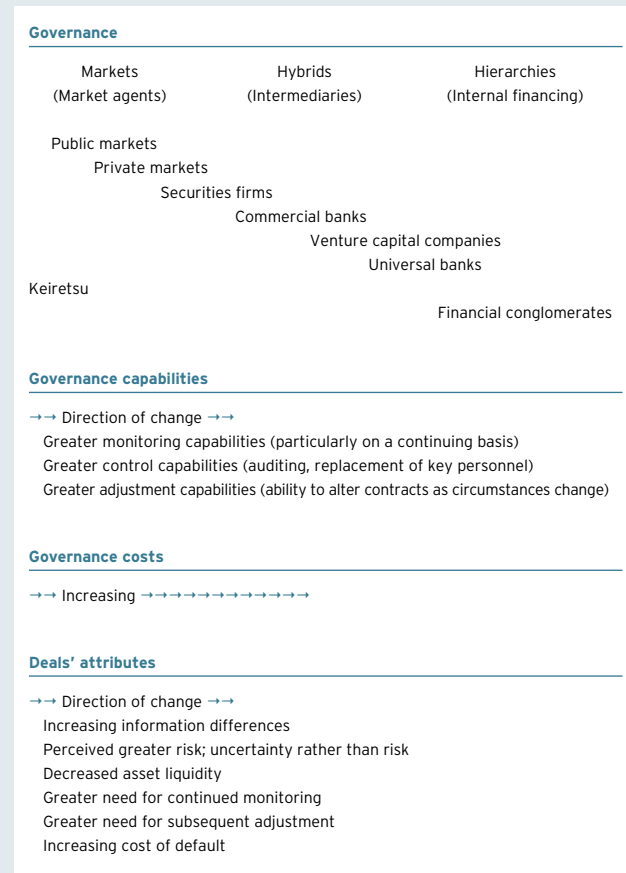


Figure A1 - Governance capabilities, deal attributes, and static alignment

