The economic value of surety bonds

Prepared for The Surety & Fidelity Association of America

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Executive Summary

The Surety and Fidelity Association of America (SFAA) commissioned EY to analyze the economic value of surety bonding. At a simple level, surety bonds protect public and private construction projects by guaranteeing contract performance when a contractor defaults and by paying subcontractors and suppliers, many of which are small businesses, where the contractor cannot or does not. Surety bonds also provide other benefits that may help construction projects succeed and reduce costs.

The focus of this analysis was to evaluate the benefits of surety bonds for a portfolio of public and private construction projects and develop estimates of the benefits of surety bonding throughout the lifecycle of those projects and including benefits extending beyond the financial protection surety companies provide when contractors default. This analysis is based on an assessment of project portfolios using a survey of public and private developers and interviews with experts on construction project defaults.

Key finding: *This analysis found that bonded portfolios of projects generally outperform non-bonded portfolios of projects, even under conservative estimated savings associated with key benefits such as lower default rates and average completion costs upon contract default for bonded projects, and improved contractor pricing for bonded projects.*

Three primary areas of economic value from surety identified

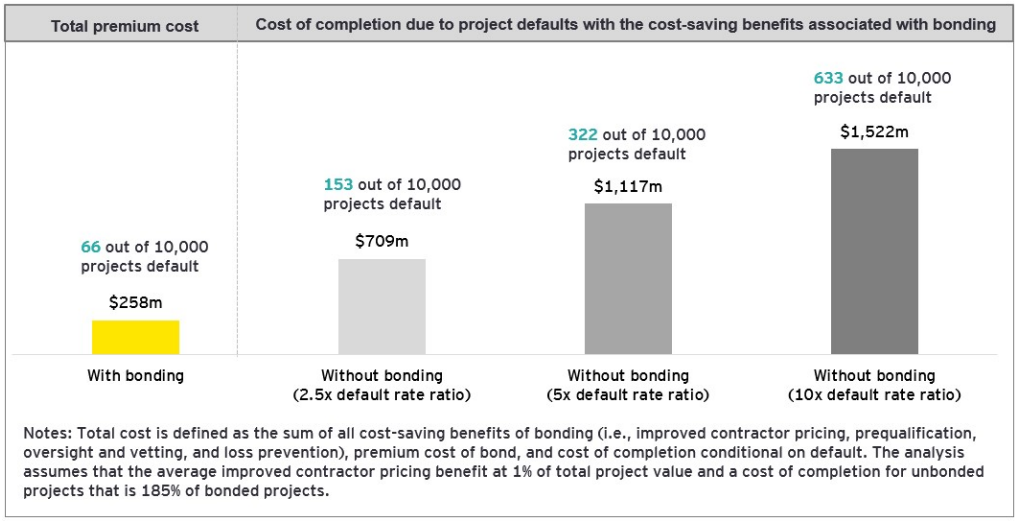
This analysis identified three areas where surety bonds have a significant impact on public and private construction projects (see Figures ES-1 and ES-2):

- ***Lower cost of completion upon default and necessary completion expertise*** – Unbonded construction projects on which the contractor defaults were found to have a cost of completion 85% higher than projects protected by surety bonds. Experts on construction project defaults also indicated the surety is generally more able to provide the expertise and resources needed in promoting a successful transition or re-procurement process, compared to an owner. Over 90% of these experts reported public or private owners/developers generally do not have the expertise and resources to complete the project, whereas the surety has the necessary expertise and resources.
- ***Lower rate or likelihood of default*** **–** Unbonded projects are more likely to default than bonded projects, perhaps by as much as ten times.[i] This analysis assessed portfolio performance assuming a default rate of 2.5 times, 5.0 times, and 10 times a bonded portfolio's default rate, and generally found unbonded projects are more likely to default than bonded projects, in large part, because they lack the various types of support bonding provides to projects (e.g., prequalification of a contractor's expertise and financial strength, greater project oversight).

[i] For example, see Canadian Center for Economic Analysis, "The Economic Value of Surety Bonding in Canada: A networked agent-based economic assessment," August 2017, p.28.

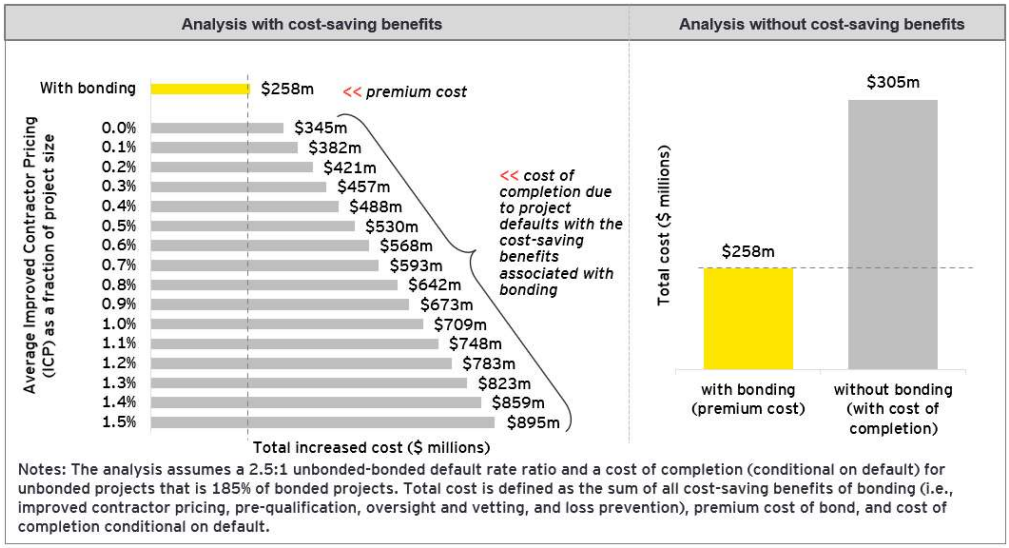
- ***Improved or lower contractor pricing*** – 75% of owners/developers surveyed reported that surety bonding reduces contractor pricing. Respondents cited increased confidence in the general contractor to complete the project and pay subcontractors and payment protections for subcontractors as some of the factors that impact contractor pricing.

Figure ES-1. Total portfolio cost faced by owner, by default rate ratio



Source: EY analysis.

Figure ES-2. Total portfolio cost faced by owner, by improved contractor pricing and other cost-saving benefits



Source: EY analysis.

Surety bonds were also found to benefit construction projects in several other ways:

- ***More rigorous prequalification and review*** – Prior to construction, prequalification was more likely to occur for bonded projects (96% of respondents reported that pre-qualification was performed for bonded projects as compared to 61% for non-bonded), and during construction, contractors provided more information for bonded projects -

general contractors were nearly twice as likely to share more than one financial update for bonded projects as for non-bonded projects.

- ***Higher priority on bonded projects/greater project oversight*** – Respondents reported that contractors prioritize bonded projects when experiencing financial challenges. Nearly 5-times as many respondents indicated that contractors place a higher priority on bonded projects as compared to unbonded projects when facing financial difficulty. Greater project oversight with more involvement by construction managers is likely to help prevent losses.
- ***Greater timeliness of completion*** – 5-times as many public and private owners reported, bonded projects are more likely to be completed on time or ahead of schedule than non-bonded projects. And when a project does default, an unbonded project will take nearly 2-times longer to complete than a bonded project.
- ***Necessary experience and resources when defaults occur*** – 100% of construction default experts surveyed/interviewed for this analysis said sureties have the expertise, tools and resources necessary to complete a project in the most cost and time-effective manner as compared to an owner who does not have the same expertise and experience as a surety.

This report includes the potential cost savings and other benefits of surety bonds that go beyond the financial protection when contractors default on a construction project. It is important to note some of these services and benefits services may already be provided by some owners and developers, particularly those that are larger and/or more sophisticated.[ii]

[ii] Some self-selection may be associated with the types of projects in which bonding is used in the private sector, such as with, for example, riskier projects facing greater difficulty in attaining surety bonding. Neither of these factors is reflected in this analysis.

Contents

I. Introduction

The Surety & Fidelity Association of America (SFAA) commissioned EY to analyze the economic value of surety bonding. At a simple level, surety bonds protect construction and other projects by guaranteeing contract performance upon contractor default or paying subcontractors and suppliers where the general (prime) contractor cannot or does not. Surety bonds, however, can also provide other benefits that may help construction projects succeed and reduce their cost.

Projects often rely on surety bonds to avoid the risk of default and project delays.[1] A contractor may default or fail, for various reasons. These include accounting or financial issues, management issues, uncontrollable work environment issues (e.g., weather conditions, inflation, material shortages), unbonded subcontractor failure, and insufficient capital.[2] If an unbonded public project defaults, the cost of the default falls on the implicit owners – the taxpayer. If an unbonded private project defaults, the cost of default of the project falls on the project owner. In both cases, a project generally costs more and/or takes longer to complete than originally expected, as the results outline in this report.

Although a surety bond is similar to an insurance policy in that they both transfer risk, they operate differently. While an insurance policy compensates a policyholder for a financial loss due to an unforeseen event, a surety performs additional functions, such as prequalifying a contractor by evaluating their financial strength and competency to complete a project, protecting a project owner if a contractor violates the provisions of the contract, and generally ensuring the completion of a project. Sureties provide both performance and payment guarantees, whereas traditional insurance only provides a financial payout.

If a project is bonded and a contractor defaults on its obligations, the surety company can take over project completion by hiring a completion contractor, tendering a new contractor to complete directly for the owner, providing financial support to the original contractor to aid project completion, and/or reimbursing the project owner up to the bond amount. All of these benefits are generally provided at no additional cost to the owner beyond the original bond premium, thereby bolstering the project's risk management.

Surety bonds have been an integral part of protecting construction projects since 1894, when the Heard Act was introduced to protect federal construction projects.[3] Due to procedural limitations, the Heard Act was replaced by the Miller Act (40 U.S.C. §§ 3131-3134) in 1935.[4] The Miller Act requires contractors with federal construction projects exceeding $150,000 in value to post bonds guaranteeing the performance of the project and the payment of their subcontractors and other material suppliers.[5] All states apply a state version of the Miller Act, referred to as “Little Miller Acts,” to public contracts involving the state and local governments.[6] Although it is not mandatory, private owners can elect to require surety bonds to protect themselves from project default and gain the benefits outlined in this report.

Surety bonding can help complete construction projects in a timely manner and can provide the financial security and assurance of project completion. Surety companies also perform extensive pre-qualification of contractors during the bidding process, which may reduce the risk of default.

Furthermore, surety companies provide support to contractors to enable them to finish the project and ensure the subcontractors and material suppliers associated with the project are paid.

The focus of this report is to quantify the benefits surety bonding generates throughout the lifecycle of a portfolio of public and private construction projects – including benefits extending beyond the financial protection surety companies provide when contractors default. Five project types are examined: 1) public highway, 2) public K-12 school, 3) public underground wastewater pipeline, 4) private hospital, and 5) private apartment building. This analysis uses results from a survey of developers and interviews with experts on construction project defaults to identify and quantify the various ways surety bonding supports construction projects. Three primary factors are identified: 1) a lower rate or likelihood of default, (2) a lower cost of completion upon default, and 3) improved or lower contractor pricing. Additional cost-savings benefits of surety are also identified such as prequalification, loss prevention, and project oversight.

A representative portfolio of construction projects was developed to compare the financial performance of a bonded versus unbonded portfolio measured by their total cost. The cost of a bonded portfolio is determined by aggregate surety premiums, while the cost of the unbonded portfolio is determined by several factors including the likelihood of default, cost of completion incurred upon default, and cost of not availing cost-saving benefits of surety such as improved contractor pricing, loss prevention, oversight and vetting, and pre-qualification.

These and other factors were found to significantly reduce the expected cost of bonded construction projects, even under relatively conservative assumptions. Bonded portfolios of projects were generally found to perform better than the unbonded portfolios, even with conservative estimates of the savings associated with default rates and average completion costs upon contract default for bonded projects and before considering the impact of improved contractor pricing for bonded projects. The analysis shows the cost savings associated with a bonded portfolio cover the costs of the bonds, with and without the impact of improved or lower contractor pricing.

II. Economic benefits of surety bonds identified by a survey of developers and interviews of surety industry experts

EY conducted a Surety Developer Survey and EY Construction Default Interviews to identify how surety bonding can significantly impact the cost of construction projects.

- **EY Surety Developer Survey** – Surveyed 100 owners and developers of public and private construction projects that varied by size and type. Respondents included people with various roles to benefit from their multiple perspectives. The survey was used to identify and quantify the numerous ways surety bonding impacts construction projects.
- **EY Construction Default Interviews** – Interviewed 12 construction industry professionals with extensive experience managing projects with contractor terminations for construction default, with a focus on the resources and strategies for mitigating the impact of the general contractor's termination including reducing the likelihood of termination, the cost of completion and the completion timeline, as well as the experience managing the default process.

Description of the surveys, interviews, the respondents, and the results are provided in Appendices B and C. Key findings are discussed below.

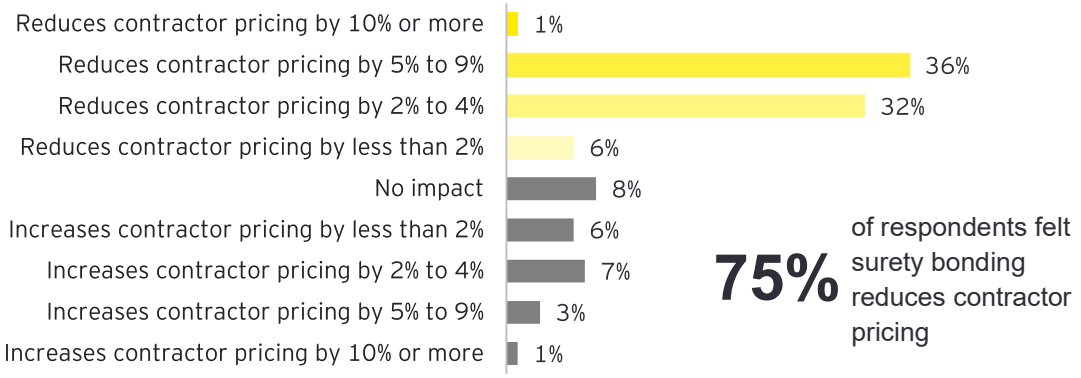
Cost-saving benefits of surety bonds

In addition to financial protection for construction projects, surety also provides other cost-savings benefits to owners. The EY Surety Developer Survey identified four cost-saving benefits: (1) improved contractor pricing, (2) prequalification, (3) project oversight, and (4) loss prevention. These four cost-saving benefits are described in more detail in the methodology section of this report.

Of these four cost-savings benefits, improved contractor pricing is the most significant cost-saving benefit provided by surety bonds.

As displayed in Figure 1, 75% of developers surveyed reported surety bonding reduces contractor pricing. Across those developers surveyed, surety bonding was reported to reduce contractor pricing by an average of 3.2% of project value.

Figure 1. Impact of surety bonding on contractor pricing



Source: EY analysis.

Lower cost of completion

Cost of completion refers to the cost incurred to complete a project after a contractor defaults. The EY Construction Default Interviews posed a stylized example to the respondents to help quantify the extent to which the cost of completion for an unbonded project is different than that of a bonded project. The example posed to the respondents asked them to determine the "re-let premium" – or the new completion costs they could reasonably expect to incur after terminating a contractor relative to the unpaid contract balance.

The average ratio of completion costs reported by the interviewees when a surety company is not involved versus when it is involved was found to be 1.85. In other words, unbonded construction projects were found to have a cost of completion 85% higher than bonded construction projects. According to the respondents, this is due to the variety of ways the surety company supports the project, which generally reduces the cost of bonded projects that go adrift.

Other key results

Surety bonds were found to benefit construction projects in several other ways:

Increased frequency of contractor pre-qualification for bonded projects - Contractor pre-qualification is more than half again as likely to occur on construction projects where a surety bond is in place relative to projects where there is not bond.

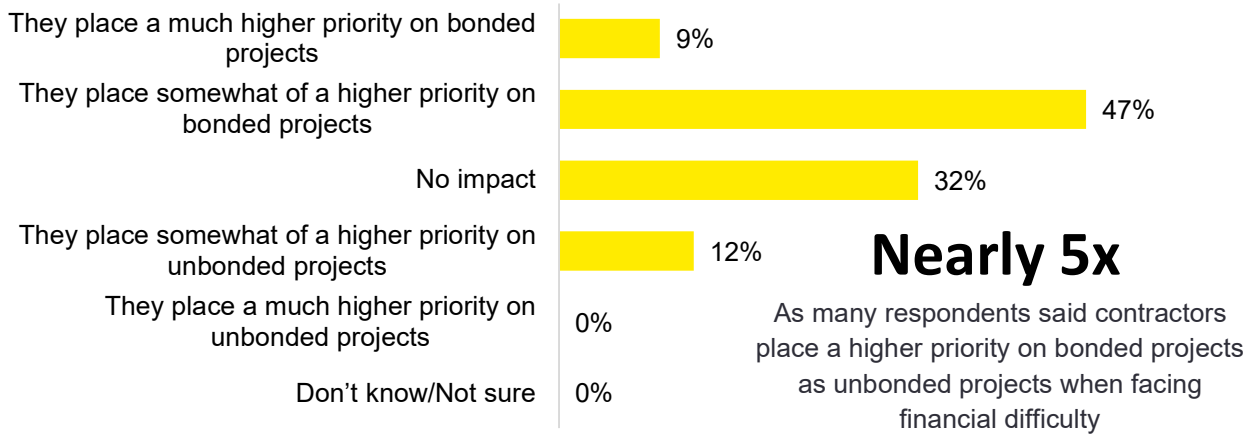
96% of respondents reported that pre-qual was performed when a surety bond was required/posted.

VS.

61% of respondents who reported that pre-qual was performed when a surety bond was NOT required/posted.

Bonded projects receive greater prioritization and project oversight – Surveyed project owners/developers report that contractors generally prioritize bonded projects when the contractor experiences financial challenges. As displayed in Figure 3, nearly five times as many respondents indicated that contractors place a higher priority on bonded projects than unbonded projects when facing financial difficulty. In another question, respondents stated the architect and/or construction manager is more likely to be involved when a project is bonded (see Figure C-11 in Appendix C), suggesting greater project oversight, which could help prevent losses.

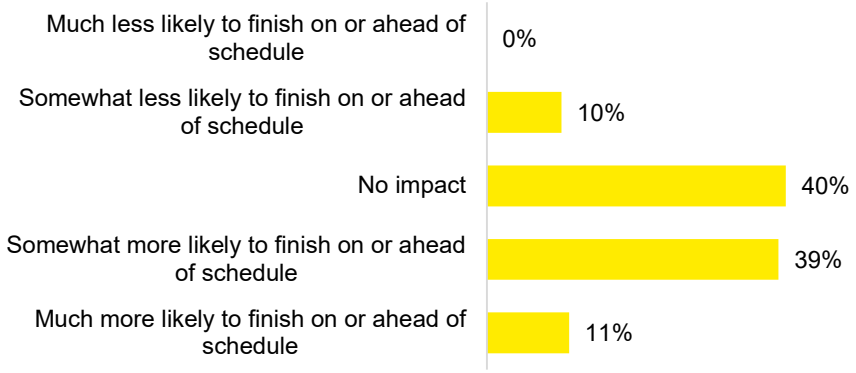
Figure 3. Project priority (bonded vs. unbonded projects) of contractors when facing financial difficulties



Source: EY analysis.

Greater timeliness of completion – There was a view among those owners/developers surveyed that surety bonded projects are more likely to be completed on time or ahead of schedule. As displayed in Figure 4, 50% of respondents reported surety bonded projects as more likely to finish on or ahead of schedule. In comparison, 40% of respondents saw no impact from surety, and 10% saw surety projects as less likely to do so.

Figure 4. Impact of surety on likelihood to continue/complete work on schedule



Source: EY analysis.

In a related question, the timeliness of bonded and unbonded projects was compared. As displayed in Table 1, bonded projects were generally viewed as more likely to be completed on time (i.e., 66% for bonded project versus 26% for unbonded projects) or less likely to be behind schedule than unbonded projects (i.e., 35% for bonded projects versus 73% for unbonded projects).

Table 1. Timeliness of projects with and without bonding

	No Surety bonding	Surety bonding present
Significantly ahead of schedule	5%	12%
Ahead of schedule	5%	19%
On time	16%	35%
Behind schedule	**73%**	**35%**
Significantly behind schedule	0%	0%

Note: Figures are rounded.
Source: EY analysis.

Necessary experience and resources when defaults occur – 100% of construction default experts from the EY Construction Default Interviews indicated surety companies are generally more able to provide the resources needed to promote a successful transition or re-procurement process as compared to an owner. Moreover, 80% of the respondents said a general contractor is more likely to deliver a project on time, deliver a project in compliance with contract documents, recover schedule loss, and/or correct quality issues when a surety company is involved.

III. Methodology for Portfolio Modeling

This report estimates the economic value of surety bonds by comparing the total cost of a bonded portfolio of construction projects to an unbonded portfolio of construction projects. The portfolios consist of projects designed to be representative across key portfolio dimensions – project size, surety premium (in the case of bonded projects), likelihood of project default, expected losses, cost of completion, and cost-saving benefits, such as reported improved or lower contractor pricing. The total cost of a bonded portfolio is then compared to the total cost of an unbonded portfolio to determine which portfolio performs better from this perspective; that is, which is less costly.

Five project types are analyzed:

1) public highway,
2) public K-12 school,
3) public underground wastewater pipeline.
4) private hospital, and,
5) private apartment building,

In addition to the costs savings from fewer and less costly defaults for a portfolio of projects, as well as reported improved or lower contractor pricing, this report also includes potential cost-savings that might accrue from surety bonds unrelated to the contractor default protection they provide. Some of these additional services may already be incurred by some owners and developers, particularly those that are larger and/or more sophisticated. This aspect of the potential redundancy for these types of services is not reflected in this analysis.

Below, an illustrative construction project is presented to show, at a high-level, the structure of a single project.[7] That structure is then deployed to develop a representative portfolio of projects for each of the five project types analyzed. The significant features of the portfolio modeling are then described. A detailed description of the modeling approach is described in Appendix A.

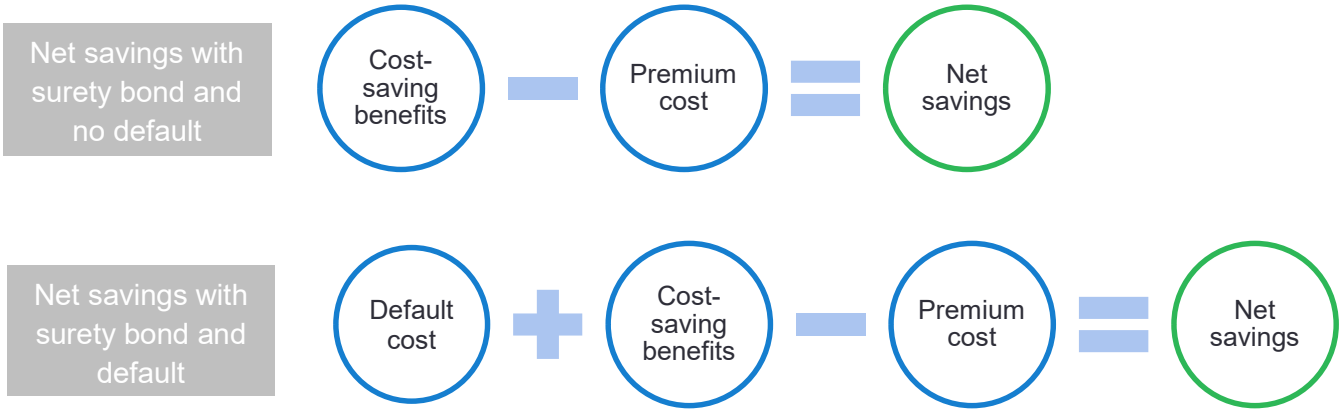
Illustrative construction project

Consider an example of a $35 million public construction project. This illustrative example will be used to compare the financial performance of a bonded and unbonded project without a default and similarly compare the respective financial performance when there is a default. In total, four scenarios are developed:

(1) Bonded project, no default
(2) Unbonded project, no default
(3) Bonded project, contractor defaults
(4) Unbonded project, contractor defaults

For this example, the net savings from surety bonding are calculated, in present value, as the difference between the incremental project cost for the bonded and unbonded projects, as depicted in Figure 5.

Figure 5. Overview of net savings calculation with and without project default



The variables considered as part of incremental project cost include: 1) the cost-saving benefits associated with surety bonds, 2) premium costs, and 3) default costs.

Cost-saving benefits of surety bonds

Cost-saving benefits of surety on construction projects represent the incremental costs that non-bonded projects face.[8] This analysis considers four cost-saving benefits, each of which was quantified using results from EY's Surety Developer Survey:

- Prequalification
- Project Oversight
- Loss Prevention
- Reduced Contractor Pricing

The cost savings from prequalification, oversight and loss prevention were calculated as the number of hours saved in that category from being bonded times the average hourly wage rate of construction managers.[9] Improved contractor pricing is estimated as a percentage of project size. The cost-saving benefit of prequalification is assumed to be a one-time occurrence at the start of the project. The remainder are assumed to occur during the construction phase of the project and are discounted to present value using a rate of 10%. See Appendix A, Table A-2.

Surety premium costs

Premium costs are calculated as the project size times an estimated premium rate. In this example, a hypothetical rate of 0.4% is multiplied by the $35 million project size for a total premium cost of $143,500. The premium cost is only incurred when a surety bond is purchased.

Cost of completion

The cost of completion is incurred when an unbonded project defaults. It is calculated as the present value of the expected loss from default. In this example, the cost of completion is $7.9 million. This calculation includes a gross-up of the expected loss amount by the 85% increased completion costs for unbonded projects discussed elsewhere in this report.[10]

Net savings

After all costs are identified, the incremental project cost is calculated as the sum of cost-saving benefits, surety premiums, and the cost of completion for each scenario. As displayed in Table 2, the net savings from having a surety bond in the case of no default is $140,000 or 0.4% of the $35 million total project cost. The $140,000 in net savings accrue because the cost-saving benefits associated with surety bonds more than offset premium costs.

In the case where the project is assumed to default, the net savings from surety bonding is $8.0 million or 23% of total project cost. In the case of default, $8 million in net savings accrue because the surety bond protects the owner from default costs and the cost-saving benefits associated with surety bonds on construction projects more than offset premium costs.

Table 2. Net savings from surety bonds for an illustrative $35 million construction project

Dollars in thousands, in present value

	No default		Contractor default	
	No surety bond	**Surety bond**	**No surety bond**	**Surety bond**
Cost-saving benefits	$284	-	$284	-
Surety premium	-	$144	-	$144
Cost of completion	-	-	$7,900	-
Incremental cost	$284	$144	$8,185	$144
% of project size	0.8%	0.4%	23.4%	0.4%
Net savings	**$140**		**$8,041**	
Surety benefit (% of project size)	**0.4%**		**23.0%**	

Note: All calculations are displayed in present value using a discount rate of 10%.
Source: EY analysis.

Portfolio model

This portfolio model simulates the costs and benefits of surety bonds for a portfolio of 10,000 construction projects under alternative scenarios and assumptions. The analysis is conducted for each project in the portfolio following a similar methodology to the calculation illustrated in the example above. For the purpose of this analysis, the total cost of a portfolio generally refers to

the sum of the premium cost, the cost of completion upon default, and all cost-saving benefits of surety (pre-qualification, contractor oversight, loss prevention, and improved contractor pricing) of all projects in the portfolio. Alternative scenarios are examined that include the cost-saving benefits to varying degrees to understand their impact on a portfolio's total cost.

The analysis is completed in two steps:

1. *Constructing representative portfolios* - SFAA industry data on project size, cost of completion conditional on default, estimated premium rate, and default frequency are used to create a portfolio of representative projects.

2. *Simulating project portfolios* - The resulting portfolio is simulated two times to determine whether a project defaulted given its default frequency, once assuming the portfolio is bonded, and a second time assuming the portfolio is unbonded.

The cash flow of each project within a portfolio is analyzed over a period of 20 years to calculate the net present value of the total cost of the portfolio under each simulation run (e.g., the cash flow model is run 10,000 times for each project included in the simulated portfolios).[11] The data and assumptions for the various aspects of each project modeled are derived from industry data from the SFAA, an EY survey of developers, EY interviews with surety industry subject matter experts, and publicly available financial and other industry data. Each step of the analysis is described in detail in Appendix A.

IV. Impact of surety bonding on a portfolio of projects: A portfolio of highway projects

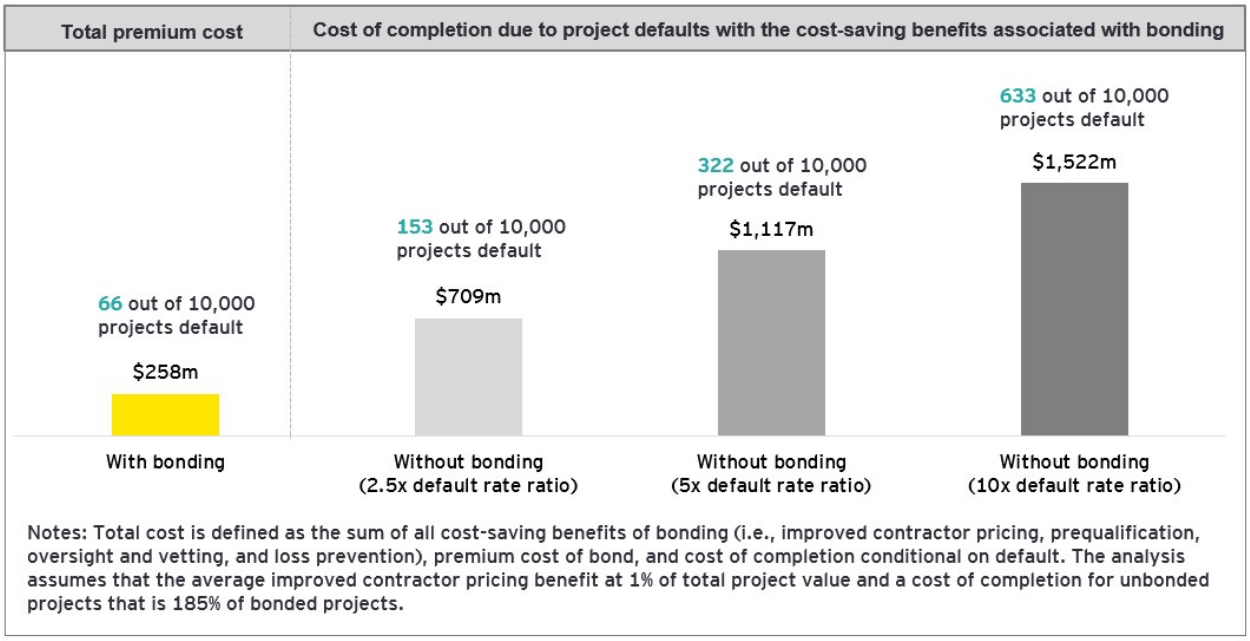
Simulation results for a portfolio of highway projects are presented below. As discussed above, the portfolio consists of 10,000 highway projects constructed to statistically match the distribution of key project features (e.g., project size, surety premiums, expected loss, default rates, cost of completion) developed from industry and other data sources. The simulations are designed to compare the total cost of a portfolio with surety bonding to portfolios without surety bonding. The assumptions depicting key features of the portfolios – default rate, improved contractor pricing, and other cost-benefit savings – are then varied to indicate how bonded portfolios generally perform as compared to unbonded portfolios based on their total cost (in net present value). The results are shown with and without improved contractor pricing.

While the simulation results for the portfolio of highway projects is provided below, simulation results for all five project types analyzed are provided in Appendix A.

Lower rate or likelihood of default

The total portfolio cost incurred by the owner varies significantly between bonded and unbonded portfolios. Figure 6 displays how the total cost of the simulated portfolios vary with the three different scenarios assumed for the relationship of bonded-to-unbonded project default rates – unbonded projects with default rates that are 2.5 times, 5 times, and 10 times higher than for a bonded portfolio.

Figure 6. Total portfolio cost faced by owner, by default rate ratio



Source: EY analysis.

There is a general view, supported by the EY interviews with experts on construction project defaults, that unbonded projects are more likely to default than bonded projects, in large part,

because they lack the various types of support bonding provides to projects (e.g., prequalification of a contractor's expertise and financial strength, greater project oversight).[12] The 10-to-1 factor corresponds to both the estimates for Canada,[13] as well as the failure rate for construction firms from US Census data on business dynamics during the 2000 though 2018 period.[14] The construction firm failure rate is used here as a proxy for the project default rate. Excluding firms with five or fewer employees and nine or fewer employees from the business dynamics data suggests an unbonded-to-bonded default rate factor of roughly 2.5-to-1 and 5-to-1, respectively, thereby providing a basis for examining the sensitivity of the simulation results across this range.

The simulation for the bonded portfolio finds that 66 projects out of 10,000 projects default. The total cost of this portfolio is the aggregated cost of the surety premiums, $258 million. Since all projects included in the bonded portfolio are protected against any losses due to project failure, the completion costs for the 66 defaulted projects are absorbed by the surety company, not the owner. For the unbonded portfolios with the higher default rates (i.e., 2.5X, 5X, 10X higher), 153, 322, and 633 of the 10,000 simulated projects default, with the owner of the portfolio facing a total cost of $709 million, $1,117 million, and $1,522 million, respectively.

Since these three portfolios are unbonded and without the support of a surety company, the total cost for these scenarios includes the cost of completion faced by the owner and the cost of not availing the cost-saving benefits of surety. For these simulations, conservatively, the improved contractor pricing benefit is assumed to average 1% of total project value, as compared to the average 3.2% improvement in contractor pricing from the EY Surety Developer Survey. As illustrated in Figure 6, even when using conservative assumptions for improved contracting pricing and a rate of default towards the lower end of the range simulated, the total cost of the bonded portfolio is below the total cost of the unbonded portfolio.[15]

Impact of cost-saving benefits of surety bonds

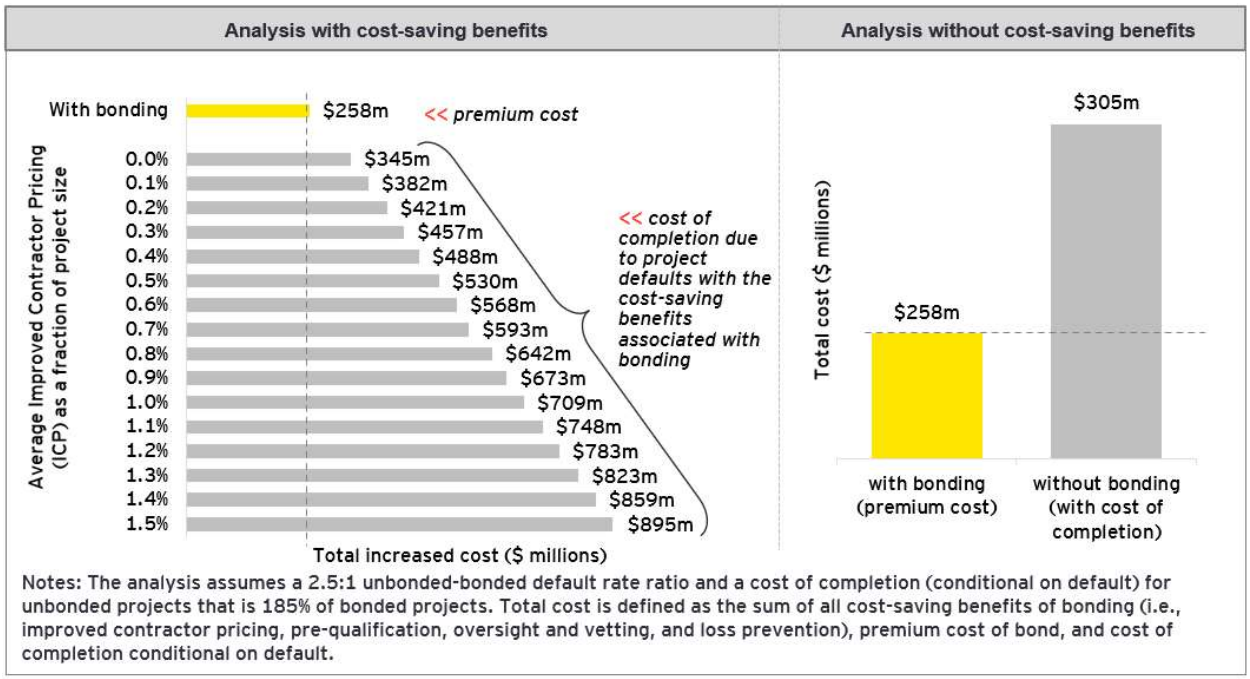
The total portfolio cost incurred by an owner can vary significantly between bonded and unbonded portfolios depending on the amount of cost-saving benefits realized. Figure 7 displays simulation results that show:

1) how the total portfolio cost varies with different levels of improved contractor pricing, conservatively in the range of 0.0% to 1.5%, and,
2) the portfolio cost without any cost-saving benefits, including improved contractor pricing, to isolate the impact of the higher cost of completion associated with unbonded projects on portfolio cost.

As discussed above, and shown in Figure 7 below, the total portfolio cost for the simulation of the bonded highway portfolio is $258 million, the aggregate cost of the portfolio's surety premiums. In comparison, for the unbonded portfolio simulations, the total portfolio cost ranges from $345 million when the improved contractor pricing is not included (i.e., is zero) to $985 million when improved contractor pricing is, on average, 1.5% of project value (i.e., "Analysis with cost-saving benefits"). That is, the amount of improved contractor pricing can have a significant impact on the total portfolio cost, even when assumed to be relatively small. Moreover, the simulations illustrate that even when improved contractor pricing is not included (i.e., is zero), the portfolio with surety

bonding has a total lower cost than the unbonded portfolio – $258 million for the bonded portfolio versus $345 million for the unbonded portfolio.

Figure 7. Total portfolio cost faced by owner, by improved contractor pricing and other cost-saving benefits



Notes: The analysis assumes a 2.5:1 unbonded-bonded default rate ratio and a cost of completion (conditional on default) for unbonded projects that is 185% of bonded projects. Total cost is defined as the sum of all cost-saving benefits of bonding (i.e., improved contractor pricing, pre-qualification, oversight and vetting, and loss prevention), premium cost of bond, and cost of completion conditional on default.

Source: EY analysis.

As stated above, Figure 7 displays the total portfolio cost assuming there are no cost-saving benefits that accrue to the bonded portfolio (i.e., "Analysis without cost-saving benefits") to isolate the impact of the higher cost of completion on the simulated portfolio cost. That is, excluding improved contractor pricing and the other cost-saving benefits (i.e., pre-qualification, oversight and vetting, and loss prevention). The key finding is that the portfolio with surety bonding has a lower total cost than the unbonded portfolio – $258 million versus $305 million – even without any of the cost-saving benefits included in the simulations.

V. Caveats and limitations

Any modeling effort is only an approximate depiction of the economic forces it seeks to represent, and the economic model developed for this analysis is no exception. Although various limitations and caveats might be listed, several are particularly noteworthy:

- **Estimates are limited by available information.** The analysis primarily relies on information provided by SFAA and information collected through the EY Surety Developer Survey and EY Construction Default Interviews. The SFAA data is collected and analyzed annually by the SFAA from over 95% of the surety industry. The analysis did not attempt to verify or validate this information using sources other than those described in the report.
- **Portfolio model results are from a singular portfolio simulation.** The results shown are specific to a single portfolio model simulation. While the results should be generalizable because of the large number (i.e., 10,000) of projects included in each simulation, the results may vary marginally if rerun. For example, the results could vary depending on which projects within a portfolio are simulated to default in any given portfolio.
- **Redundancies in surety-type services.** This report includes potential cost-savings that might accrue from surety bonds unrelated to the performance and payment protections they provide. Some of these services may already be incurred by some owners and developers, particularly those that are larger and/or more sophisticated. This aspect of the potential redundancy for these types of services is not reflected in this analysis.
- **Specific project types are analyzed.** Only the five project types described in the report are analyzed. Other project types not analyzed by this report may differ in their characteristics and, accordingly, the performance of their respective portfolios.
- **Surety and self-selection of customers (primarily private projects).** There may be, and perhaps likely is, some self-selection associated with the types of projects in which surety bonding is used in the private sector. It may be more difficult to attain surety bonding for riskier projects. This analysis does not attempt to account for such self-selection.
- **Some high-level assumptions.** The analysis focuses on those characteristics thought to drive portfolio performance, such as default rate, project size, premiums, cost of completion, and cost-saving benefits of surety bonding. Making different assumptions with regard to other project characteristics or modeling parameters, such as the discount rate, length of a project, length of the construction phase, timing of default, etc., could impact the results reported herein but are unlikely to significantly alter the basic results.
- **Project examples are illustrative examples.** The illustrative projects are stylized to illustrate the main avenues through which surety bonding and related benefits impact a project's costs, as well as to demonstrate the structure of the project-based modeling that is then used for the portfolio modeling.

Appendix A. Portfolio Model

Overview

The portfolio model calculates the total costs and cost-saving benefits for projects with surety bonds for a portfolio of projects under alternative scenarios and assumptions for each of the five project types:[16]

1) public highway,
2) public K-12 school,
3) public underground wastewater pipeline.
4) private hospital, and,
5) private apartment building.

For purposes of this analysis, the total cost of a portfolio generally refers to the sum of the premium cost (if bonded), the cost of completion upon default, and all cost-saving benefits of surety (pre-qualification, contractor oversight, loss prevention, and improved contractor pricing) of all projects in the portfolio. Alternative scenarios are examined that include the cost-saving benefits to varying degrees to understand their impact on a portfolio's total cost.

The portfolio analysis is completed in two steps:

1. *Constructing representative portfolios* - SFAA industry data on project size, cost of completion conditional on default, estimated premium rate, and default frequency are used to create a portfolio of representative projects.

2. *Simulating project portfolios* - The resulting portfolio is simulated two times to determine whether a project defaulted given its default frequency, once assuming the portfolio is bonded, and a second time assuming the portfolio is unbonded.

The cash flow of each project within a portfolio is analyzed over a period of 20 years to calculate the net present value of the total cost of the portfolio under each simulation run (e.g., the cash flow model is run for each of the 10,000 projects included in the simulated portfolios). This analysis evaluates the projects over a 20-year life with the implicit assumption that this length of time is a reasonable approximation of projects useful life. Of course, the present value calculations would vary with a different assumption. That said, the conclusions from the portfolio analysis relating to the economic value of surety are not materially impacted by somewhat longer or shorter assumed projects lives.

Evaluation of an illustrative highway construction project

An illustrative public $35 million highway construction project is presented to show, at a high-level, the structure of a single project that is then deployed to develop a representative portfolio of projects for each of the five project types analyzed.

For each project, this analysis calculates the net present value of the project's cash flows over the life of the project. The major components of a project's cash-flow include operational costs, cost of default, and the cost-benefits associated from not having surety bonds.

Key data and other inputs for the illustrative highway construction project

The data and assumptions used for each of the five project types and the 10,000 projects developed for each portfolio are derived from industry data from the SFAA, an EY survey of developers, EY interviews with surety industry subject matter experts, and publicly available financial and other industry data. The data and assumptions for the single $35 million illustrative public highway construction project are displayed in Table A-1.

Table A-1. Key data and assumptions for illustrative highway construction project

	Highway (public)
Project size ($ in millions)	***$35.0***
Years to project completion	3.6
Premium Cost	$144,000
Expected Loss ($ in millions)	$11.6
Debt to fund the project	62.5%
Initial equity Investment	37.5%
Interest rate on debt	4%
Years to pay debt	25
First year revenue/cash inflow ($millions)	$1.5
Annual revenue growth rate	5.5%
Operating cost as % of revenue	65%

Source: EY analysis.

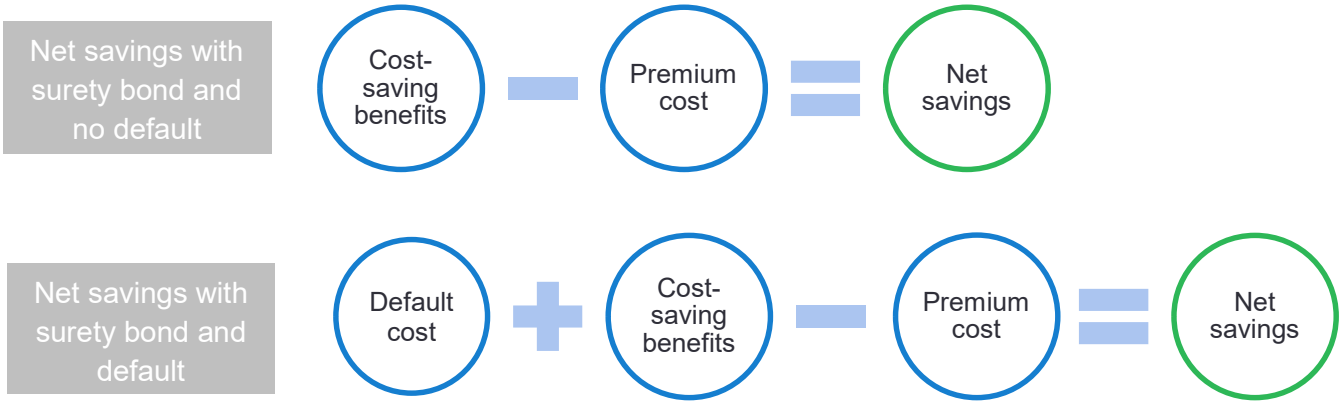
Net savings from surety bonding

The net savings is calculated under four scenarios:

1) Bonded project, no default
2) Unbonded project, no default
3) Bonded project contractor defaults
4) Unbonded project contractor defaults

The no default scenarios focus on the value of the cost-saving benefits (defined below) associated with surety bonds as compared to the premium cost. In the case of a default, the analysis focuses on the protection surety bonding provides, which can be large, to owners, as well as the cost-saving benefits found to be associated with surety bonding. This approach is summarized in Figure A-1.

Figure A-1. Overview of net savings calculation with and without project default



Cost-saving benefits

Four cost-saving benefits associated with surety bonding on construction projects, as displayed in Table A-2, were quantified using results from EY's survey of developers:

1) Improved contractor pricing,
2) prequalification,
3) oversight, and
4) loss prevention.

The cost savings from prequalification, oversight and loss prevention were calculated as the number of hours saved in that category from being bonded times the average hourly wage rate of construction managers.[17] Improved contractor pricing is estimated as a percentage of the project size. The benefits of prequalification are assumed to be a one-time occurrence at the start of the project. The remainder are assumed to occur during the construction phase of the project and are discounted to present value using a rate of 10%.

Table A-2. Single year cost-savings benefits of surety bonds for $35 million illustrative public highway construction project

Cost-saving benefits		Highway construction (public)
Project size (in millions)		***$35.0***
Improved contractor pricing	% of project cost	1%
	Cost savings	$350,000
Prequalification	Hours saved*	80.5
	Cost savings**	$4,153
Oversight	Hours saved	6.9
	Cost savings	$358
Loss Prevention	Hours saved	65.1
	Cost savings	$3,358

*Cost savings are calculated as the hours saved times the average hourly wage for a construction manager ($51.57 in May 2020). Construction managers are defined by the Bureau of Labor Statistics as employees that plan, direct, or coordinate, usually through subordinate supervisory personnel, activities concerned with the construction and maintenance of structures, facilities, and systems; construction managers participate in the conceptual development of a construction project and oversee its organization, scheduling, budgeting, and implementation.
*Hours saved are derived from the EY developers survey.
Source: Data are from US Bureau of Labor Statistics' May 2020 National Occupational Employment and Wage Estimates, https://www.bls.gov/oes/current/oes119021.htm.

Premium cost

The premium assumed for the illustrative $35 million public highway construction project is $144,000.

Completion cost

The EY Construction Default Interviews of industry experts found that more resources are needed to complete a project that defaults without surety bonds posted by the contractor. This analysis calculates the higher completion costs associated with unbonded projects that default as the present value of the expected loss from default. The default is assumed to occur in the year of project completion. The expected loss for bonded projects is calculated as a function of the expected loss ratio, the surety premium, and the expected frequency of default. The interviews of industry experts conducted by EY found that the cost of completion for unbonded projects is 85% higher than for bonded projects. Accordingly, the higher completion costs for unbonded projects that default is captured by scaling up the expected loss for unbonded projects by 85%.

Net savings for an illustrative construction project

As displayed in Table A-4, the analysis of the illustrative highway construction project shows that surety bonded projects with and without a default generally yield a net savings as compared to unbonded projects. In the case of no default, net savings accrue because the cost-saving benefits

(defined below) associated with surety bonds more than offset premium costs. In the case of default, net savings accrue because the surety bond protects the owner from the potentially large cost of default, as well as providing the cost-saving benefits found to be associated with surety bonds.

Table A-4. Net savings from surety bonds for the illustrative $35 million public highway construction project

Dollars in thousands, in present value

	No default		Contractor default	
	No surety bond	Surety bond	No surety bond	Surety bond
Cost-saving benefits	$284	-	$284	-
Surety premium	-	$144	-	$144
Cost of completion	-	-	$7,900	-
Incremental cost	$284	$144	$8,185	$144
% of project size	0.8%	0.4%	23.4%	0.4%
Net savings	**$140**		**$8,041**	
Surety benefit (% of project size)	**0.4%**		**23.0%**	

Note: All calculations are displayed in present value using a discount rate of 10%.
Source: EY analysis.

Portfolio modeling

Each step of the portfolio analysis used for each of the five project types is described in detail below.

Step 1: Constructing representative portfolios

The data from the SFAA includes:

1) the distribution of projects by size and average cost of completion upon default associated with the following percentiles 5%, 10%, 25%, 50%, 75%, 90%, 95%, 97% and 99% (for each project type),

2) the relative cost of completion around the average based on following percentiles 5%, 10%, 25%, 50%, 75%, 90%, and 95%, and,

3) the distribution of default frequency around the average based on following percentiles 5%, 10%, 25%, 50%, 75%, 90%, and 95% (for all project types).

Data on surety premiums by project size is also incorporated into the analysis. These data were used to create a representative portfolio of 10,000 projects for each project type by following the following steps.

Step 1.1: Project size and premium calculation

The percentile distribution of project sizes is first used to construct a portfolio of representative projects. Premium rates for each project within the simulated portfolio were based on industry averages obtained from the SFAA.

Step 1.2: Cost of completion conditional on default

The cost of completion for bonded projects that default (i.e., conditional on default) is calculated based on the data provided by SFAA. For other project sizes, the cost of completion is calculated as the ratio of the cost of completion-to-project size for the two closest percentiles available from the SFAA data.

The preliminary cost of completion for each of the 10,000 projects is then multiplied by a factor randomly chosen from the distribution of cost of completion factors to obtain the final cost of completion. This step introduces variability for projects of similar size that default. For example, two projects of equal size might have a different cost of completion due to varying nature of the default and delay.

The cost of completion conditional on default for unbonded projects is calculated similarly. The interviews of industry experts conducted by EY found that the cost of completion for unbonded projects is 85% higher than for bonded projects. Accordingly, the cost of completion for unbonded projects is scaled up by 85%.

Step 1.3: Default frequency

For a bonded portfolio, each project is randomly assigned a default frequency to fit the distribution provided by the SFAA.

There is a general view that unbonded projects are more likely to default than bonded projects, in large part, because they lack the various types of support bonding provides to projects (e.g., prequalification of a contractor's expertise and financial strength, greater project oversight). This view is supported by the EY interviews with industry experts on construction project defaults. Two-thirds of the experts on construction project defaults interviewed by EY indicated that the default rate for unbounded projects is at least two times the default rate of bonded projects (see Figure C-9 in Appendix C). In addition, a study of surety bonding in Canada estimates that the insolvency rate between bonded and unbonded projects is almost a factor of ten.

This analysis considers the difference in the likelihood of default for bonded versus unbonded projects by running three scenarios for each project type where the default rate for bonded projects exceeds the default rate of unbonded projects by a factor of 10, 5, and 2.5. The 10-to-1 factor corresponds to both the estimates for Canada,[18] as well as the failure rate for construction firms from US Census data on business dynamics during the 2000 though 2018 period.[19] The construction firm failure rate is used here as a proxy for project default rate. Excluding firms with five or fewer employees and nine or fewer employees from the business dynamics data suggests an unbonded-to-bonded default rate factor of roughly 5-to-1 and 2.5-to-1, respectively.

Step 1.4: Cost-saving benefits

The pre-qualification, contractor oversight, loss prevention, and improved contractor pricing cost-saving benefits of bonding are from the EY survey of developers. Although the EY survey of developers finds contractor pricing is, on average, 3.2% lower for bonded projects, this analysis considers a range of possible contractor savings. In particular, Figures A-1 through A-5 display results for a more conservative range of improved contractor pricing from 0% to 1.5% reflected as a cost (i.e., higher contractor prices) for unbonded projects. This range generally illustrates that the bonded portfolio has lower costs than the respective unbonded portfolios even when more conservative values are assumed for improved contractor pricing (i.e., significantly less than the 3.2% average improved contractor pricing from the EY Surety Developer Survey (see Appendix C)).

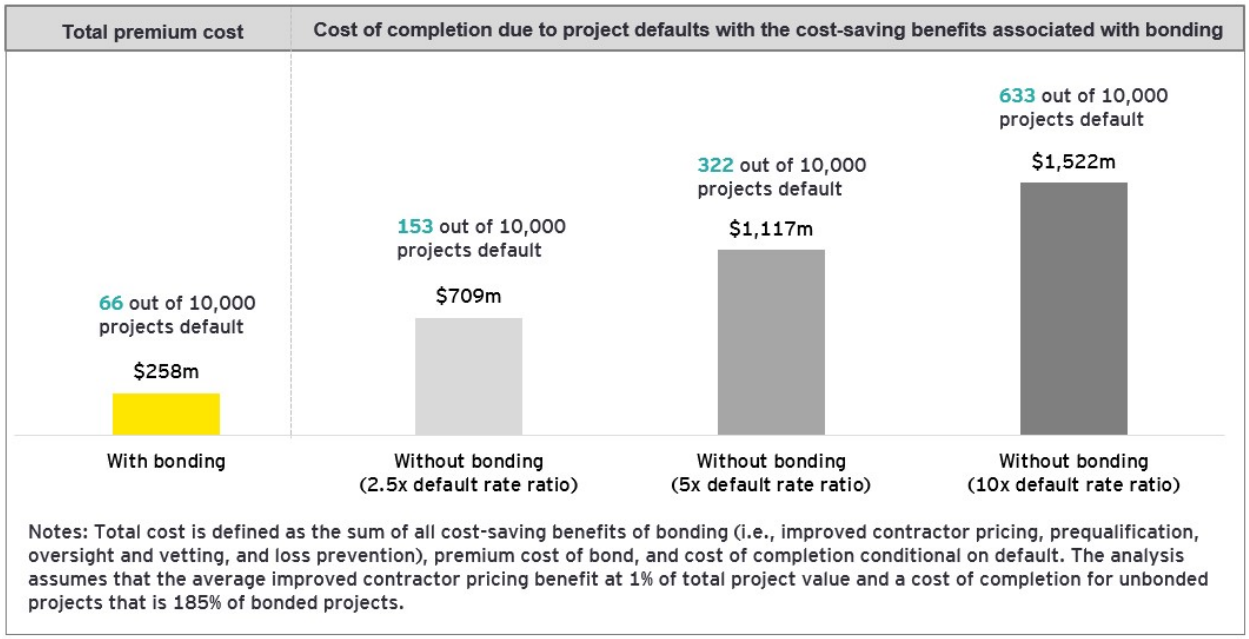
Step 2: Simulating project portfolios

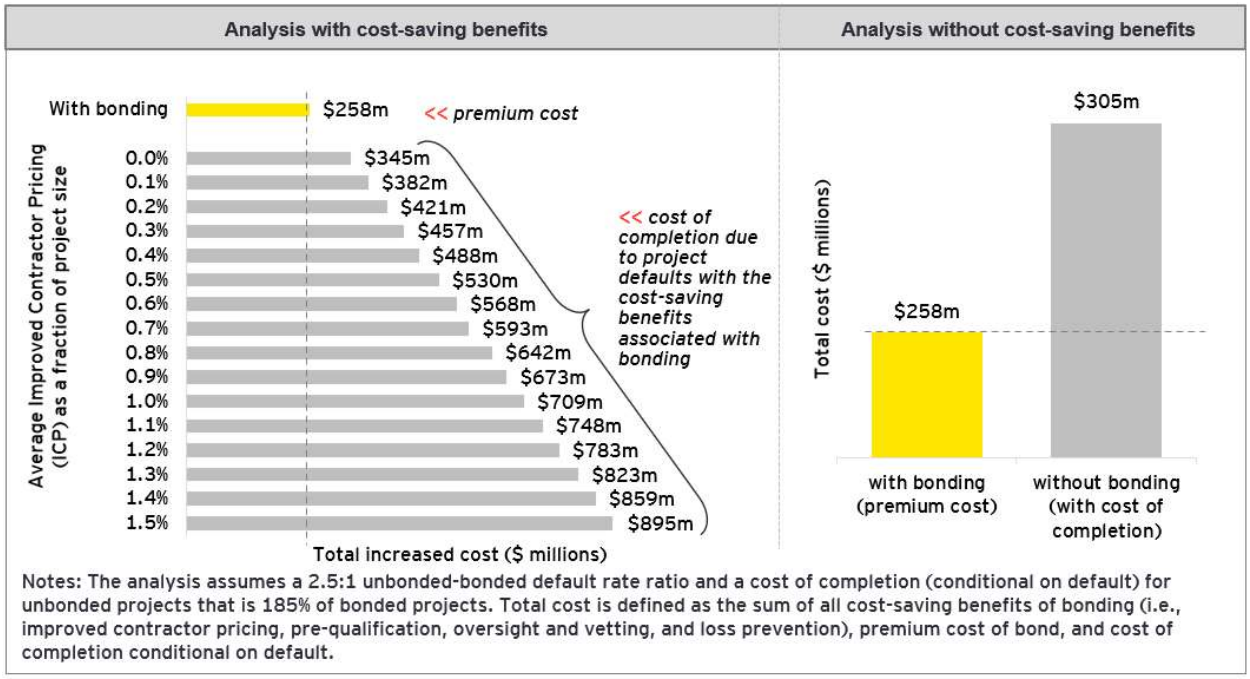
Each portfolio is simulated twice, once assuming each project in the portfolio is bonded and a second time assuming each project is unbonded. For each simulation, probability distributions of contractor default are used to determine whether a project defaults. Subsequently, the present value of the cash-flow over the life of each project is calculated. A 10% discount rate is used to compute the present value. Each portfolio's financial performance – a bonded versus unbonded portfolio – is then compared to quantify the economic value of surety bonding.

Estimated results

The impact of surety bonds for a portfolio of 10,000 projects, by project type is provided below.

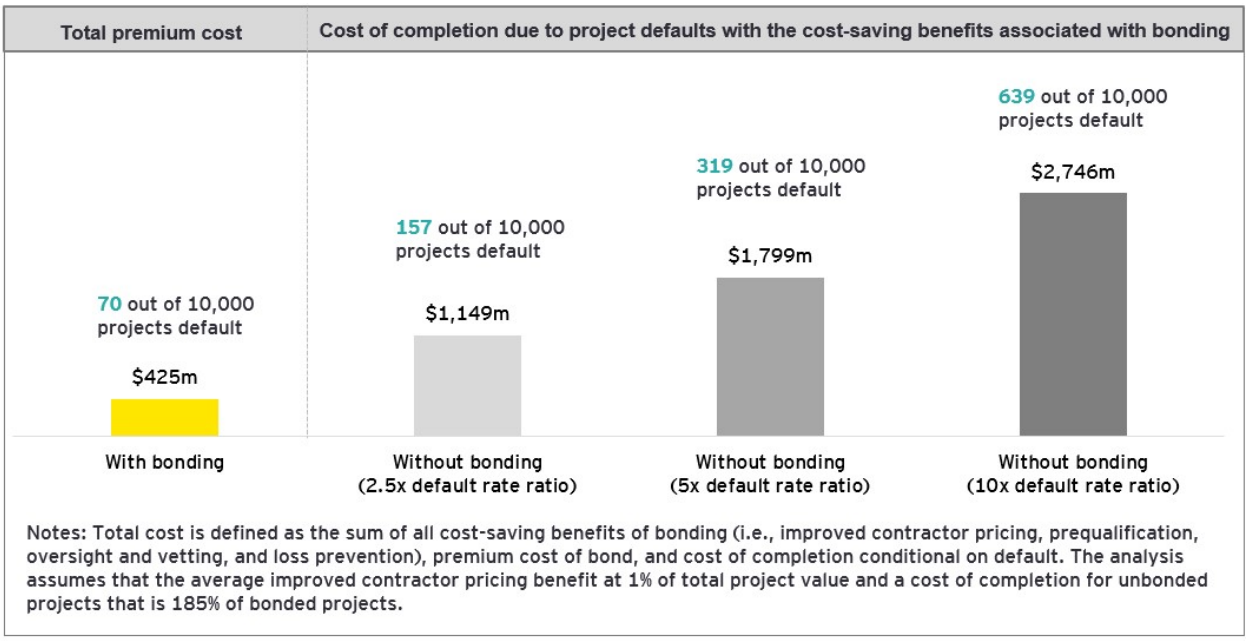
Public highways

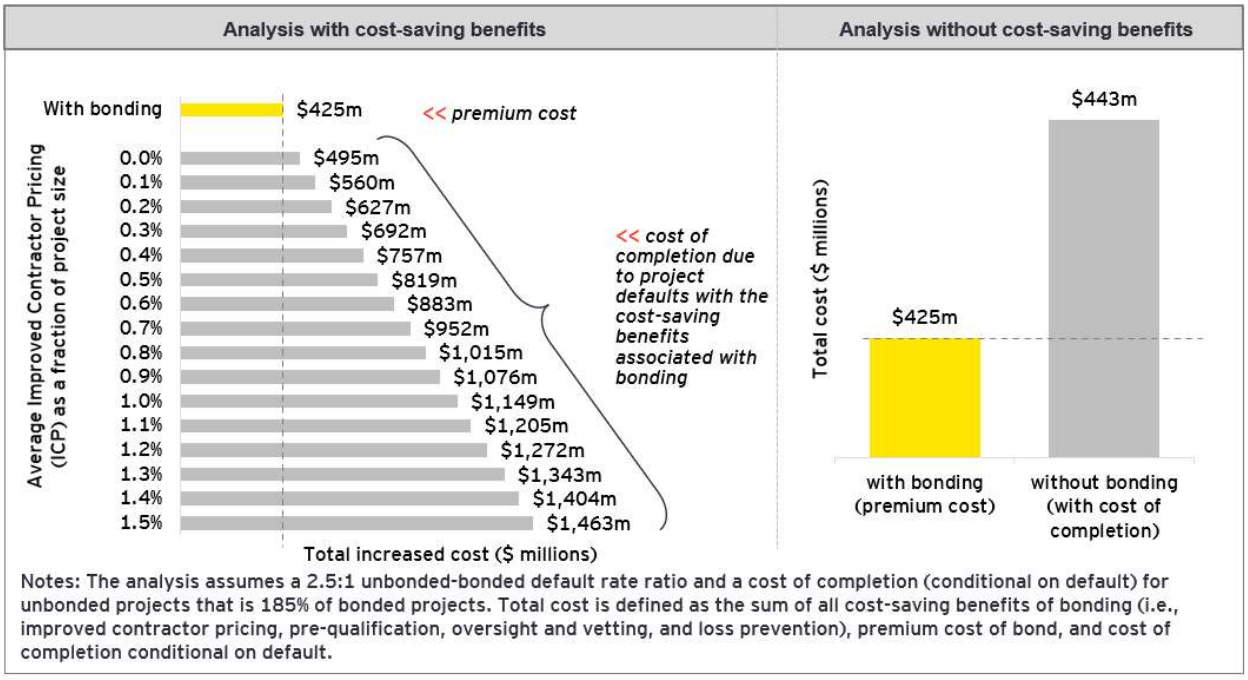




Source: EY analysis.

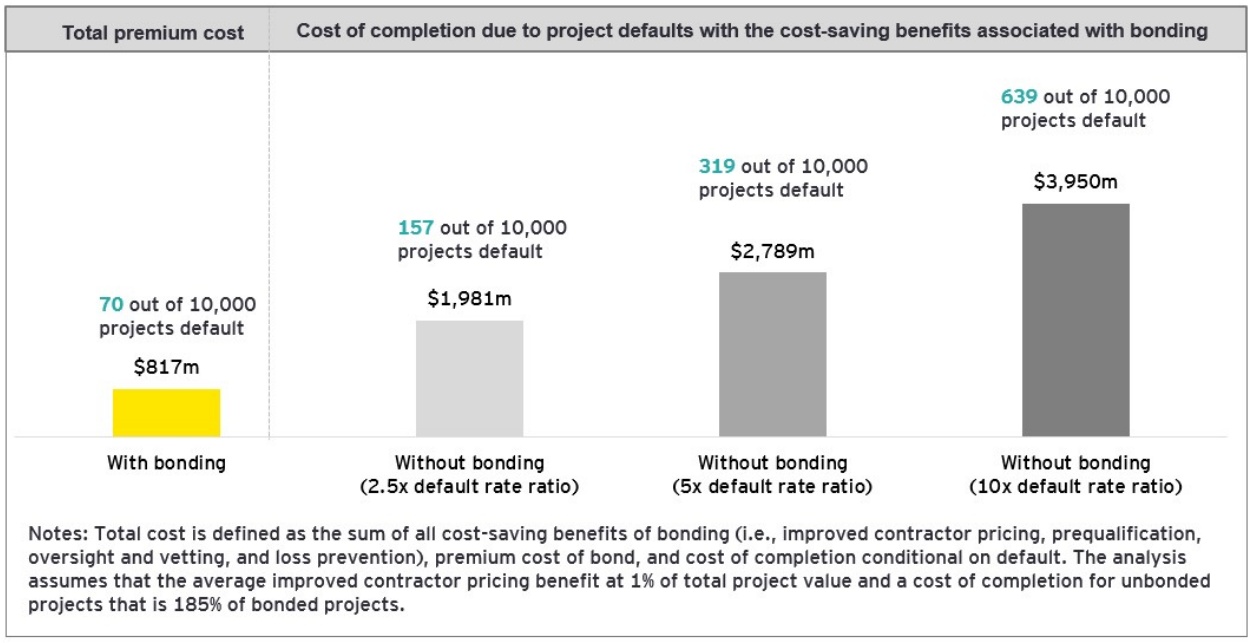
Public K-12 schools

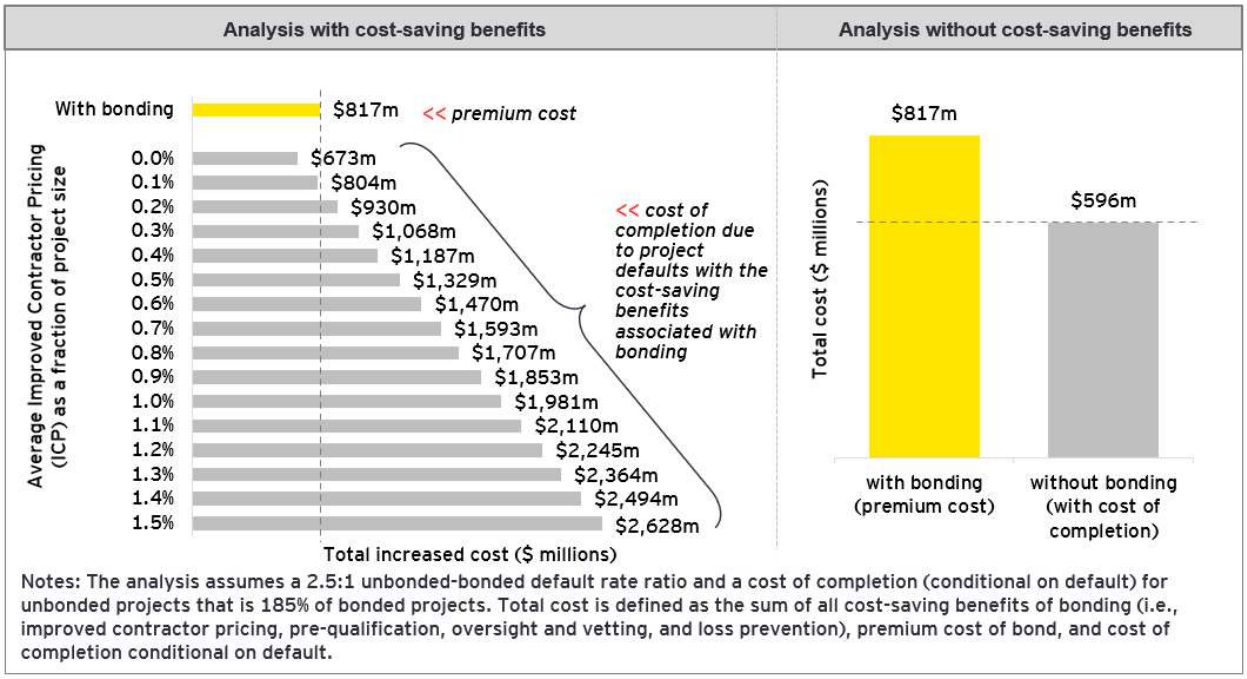




Source: EY analysis.

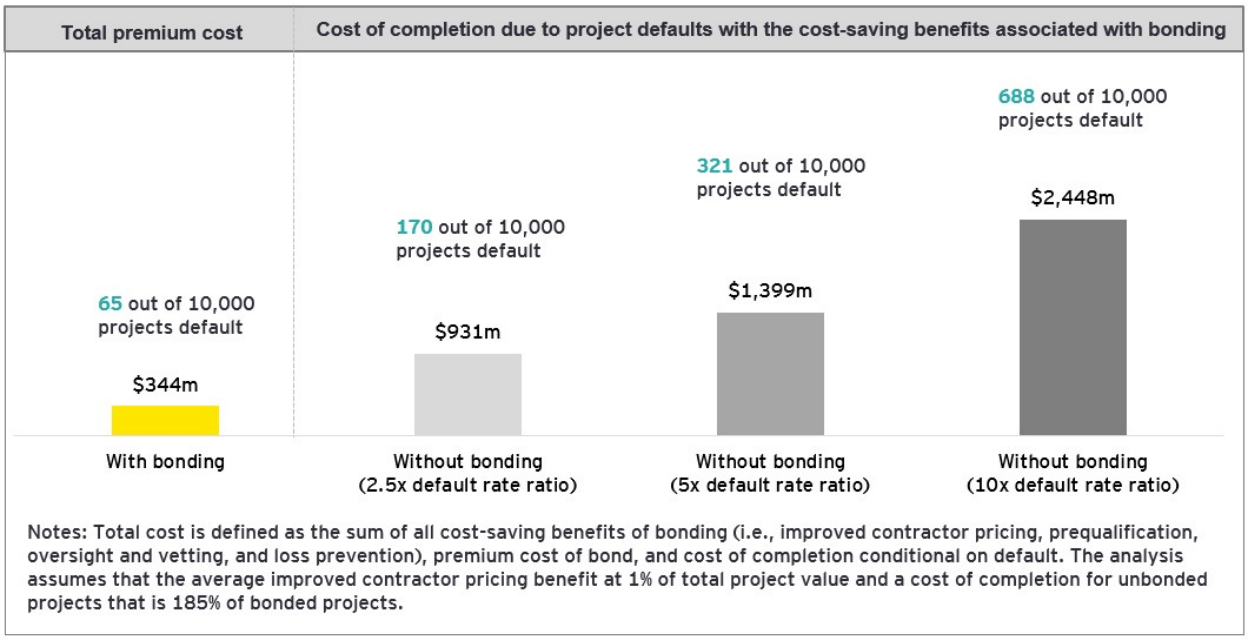
Private apartment buildings

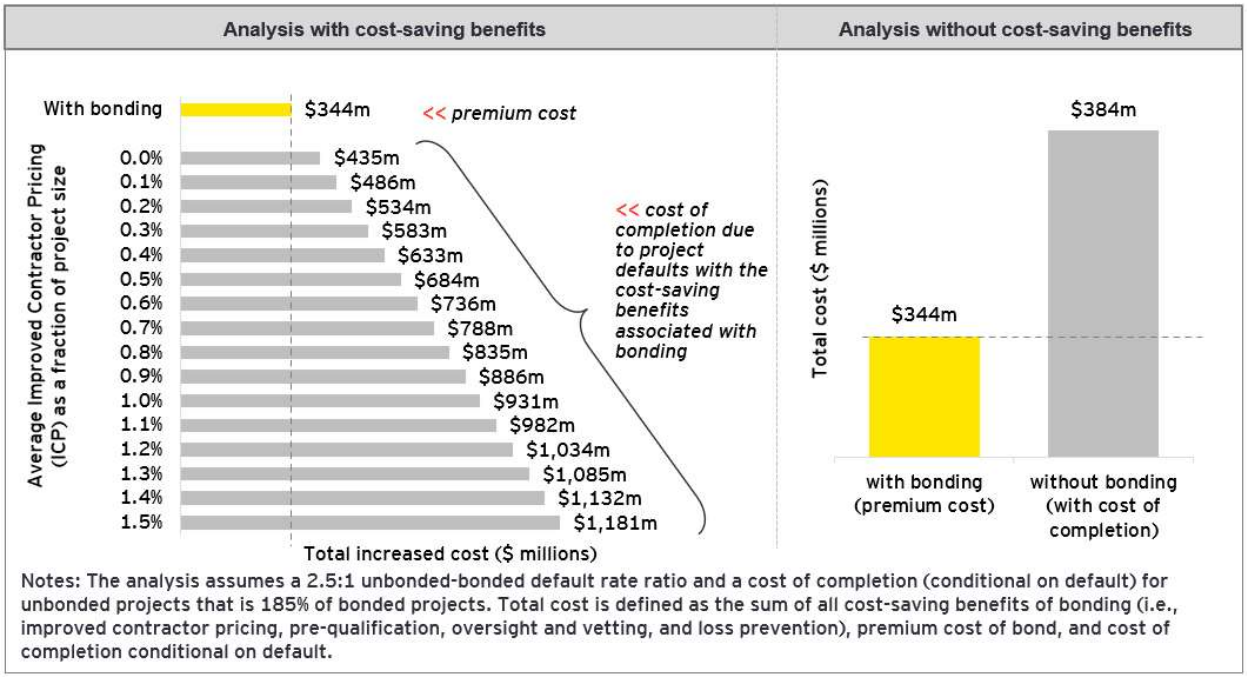




Source: EY analysis.

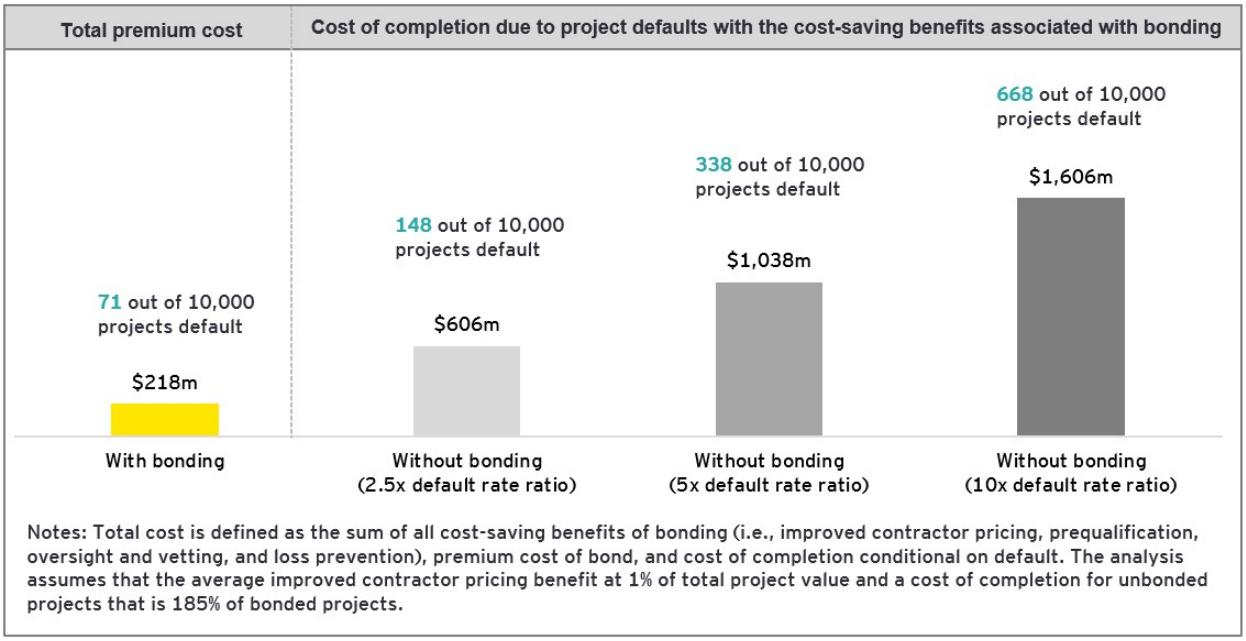
Private hospitals

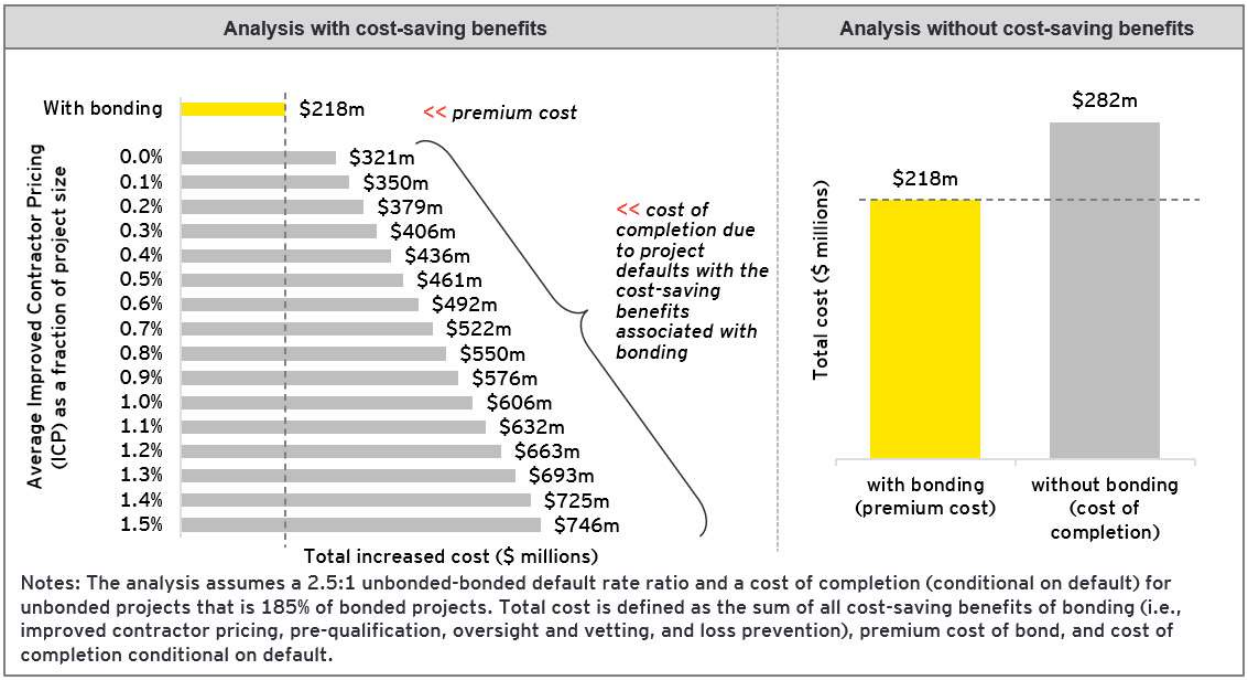




Source: EY analysis.

Public underground wastewater pipelines





Source: EY analysis.

Appendix B. EY Surety Developer Survey

Survey Objectives

To help support the portfolio modeling effort, EY conducted a survey of owners and developers of construction projects. The chief goal of the survey was to estimate the quantitative and qualitative impacts of having payment and performance (surety) bonds in place for construction projects. Table B-1 describes the study population for the survey.

Table B-1. Respondent Demographics

Public/Private	
Private Sector Respondents	70
Government Respondents	30
Current Role	
Project/Supplier Management	36%
Operations	14%
Purchasing	14%
Facilities/Construction	12%
Insurance/Risk Management	12%
Budget/Finance	10%
Size of most recent project	
$350k to $999,999	4%
$1M to $4.9M	25%
$5M to $9.9M	22%
$10M to $24.9M	24%
$25M to $49.9M	22%
$50M or more	3%
Leading titles (private)	
Director	21%
Purchasing officer	19%
Controller	14%
President/CEO	13%
Vice President	13%
CFO	10%
Leading titles (Gov't)	
Head of construction	40%
Program manager	27%
Program director	10%
Purchasing officer	10%
Director	7%
Procurement officer	3%
Leading industry sectors	
Government	27%
Healthcare	13%
Manufacturing	10%
Education	8%
Retail	8%

Construction	7%
Size of Organization (revenue – private)	
Less than $50 million	3%
$50 million to under $100 million	10%
$100 million to under $250 million	34%
$250 million to under $500 million	33%
$500 million to under $1 billion	16%
$1 billion to under $5 billion	4%

The survey collected information on the expenditures and/or level of effort of owners and developers, in each of four areas:

- contractor pricing
- contractor pre-qualification
- contractor oversight
- loss prevention

Because private companies are not required to purchase surety bonds, it was important to quantify the costs associated with performing tasks that might be accomplished by requiring surety bonds. As such, the survey focused on understanding the level of effort of private companies; however, we also surveyed employees of public entities to help facilitate comparisons where appropriate. This information served as inputs to the portfolio model.

The survey also collected information on the qualitative impacts of surety bonding in construction projects. In particular, the questionnaire asked respondents to compare their experience in construction bonding when a surety bond is in place vs. when it is not, including the following topics:

- The extent to which owners and developers spend time pre-qualifying contractors
- Frequency and rigor of contractor pre-qualification
- The extent of the review of overall contractor financial strength, prior to and during construction
- The impact of surety bonding on subcontractor pricing
- The level of detail in, and frequency of, information provided by contractors to owners and developers during the construction process
- The likelihood of contractors to complete work on schedule
- The diligence of architects and/or construction managers during the construction process
- How contractors prioritize projects when they are experiencing financial struggles

Detailed Results

Economic modeling inputs

Figures B-2 through B-5 present results designed to fulfill the survey's first purpose, which was to derive inputs to the economic models described in the body of this report. In particular, they capture the level of effort required on the part of owners and developers of large construction projects when no surety company is involved in the project for contractor pre-qualification,

contractor oversight, and loss prevention. They provide the information, together with assumptions about average wages, needed to quantify the cost-savings benefits.

The results display a distribution of hours reported by respondents. In the case of pre-qualification and loss prevention, these values were reported over the duration of the construction project in total; for contractor oversight, they were reported on an average weekly basis.

Figure B-2. Owner/Developer time spent on Contractor Pre-qualification

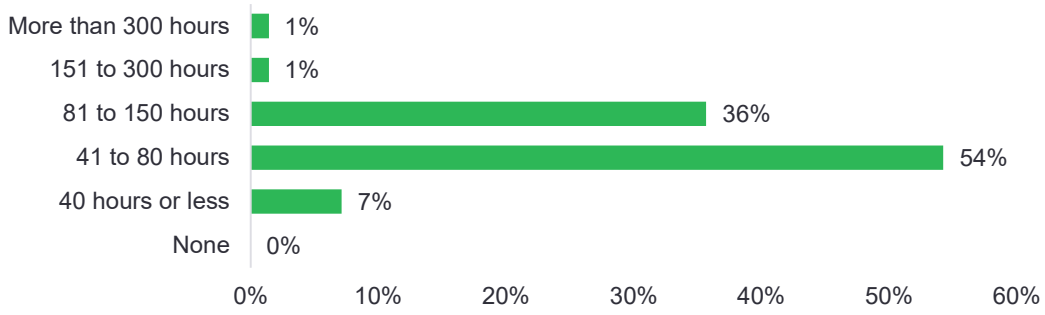


Figure B-3. Owner/Developer time spent on Contractor oversight

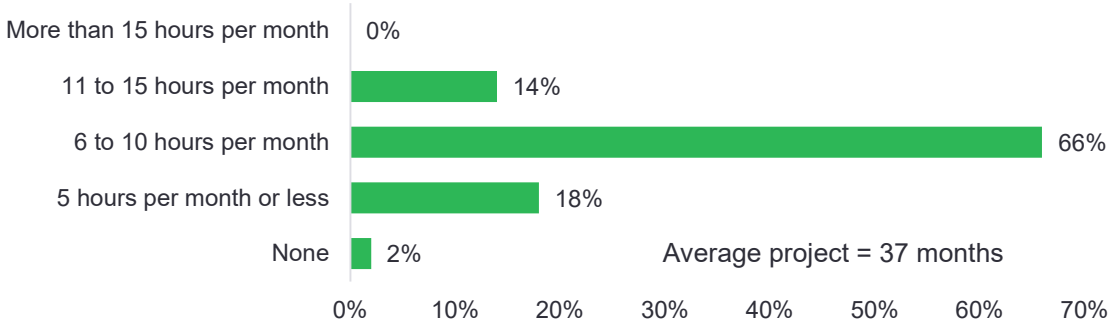
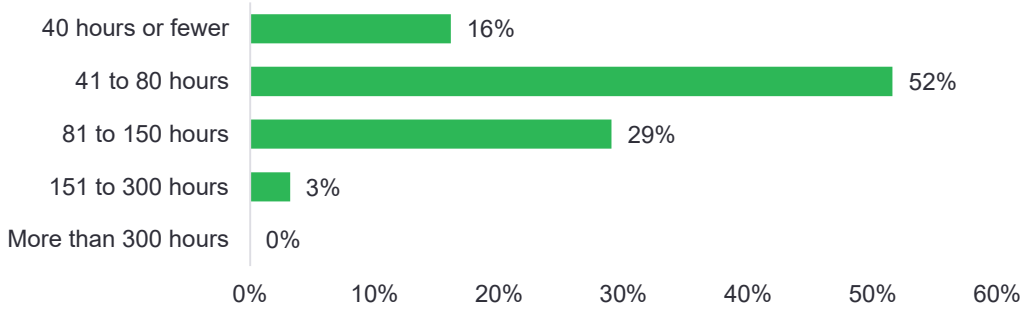


Figure B-4. Owner/Developer time spent on Loss prevention



Benefits of Surety Bonding: Improved/Reduced Contractor Pricing

The next set of figures includes survey results from questions focused on the qualitative impacts of surety bonding. With regard to these qualitative factors, respondents generally felt that:

- the use of a surety company reduces contractor pricing
- owners/developers receive more detailed financial information when surety is involved
- bonded projects are more likely than non-bonded projects to be completed on time or ahead of schedule
- architects and construction managers are more diligent when a surety is present
- contractors prioritize bonded projects if they are experiencing financial struggles

Figure B-5. Impact of surety bonding on contractor pricing

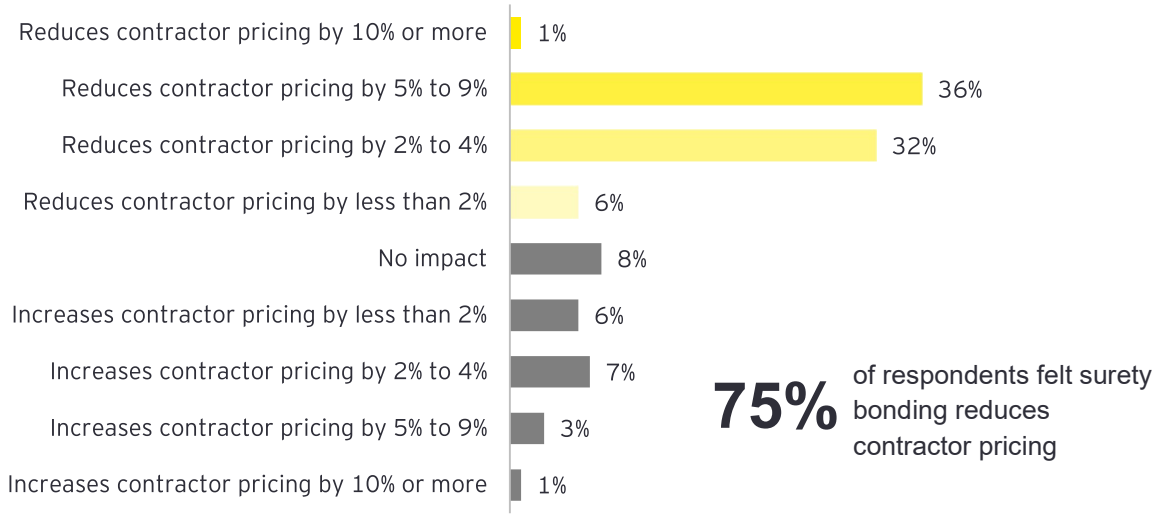


Figure B-6. Factors affecting pricing when surety bonding is in place

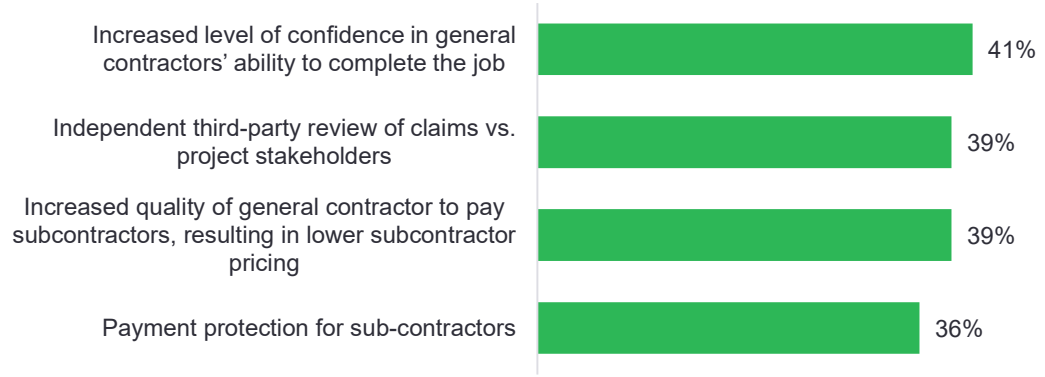
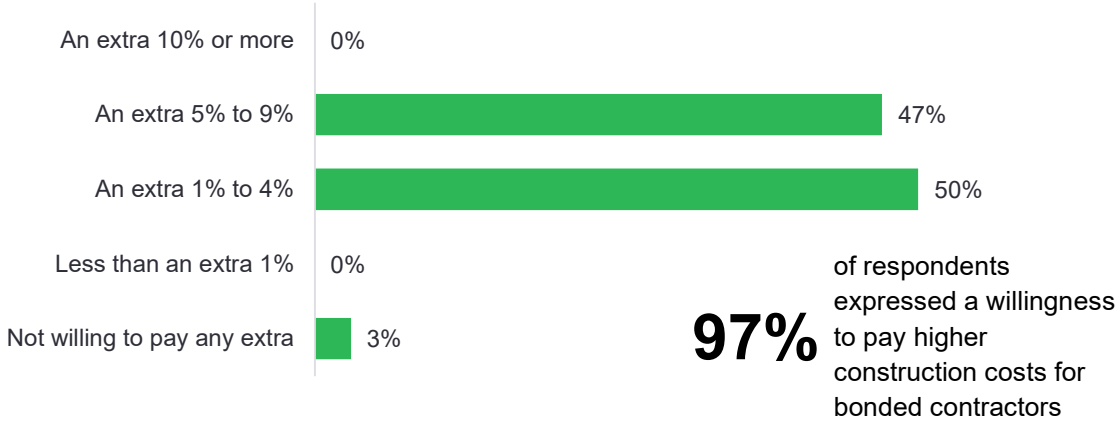


Figure B-7. Higher construction costs owner is willing to pay when using bonded contractors

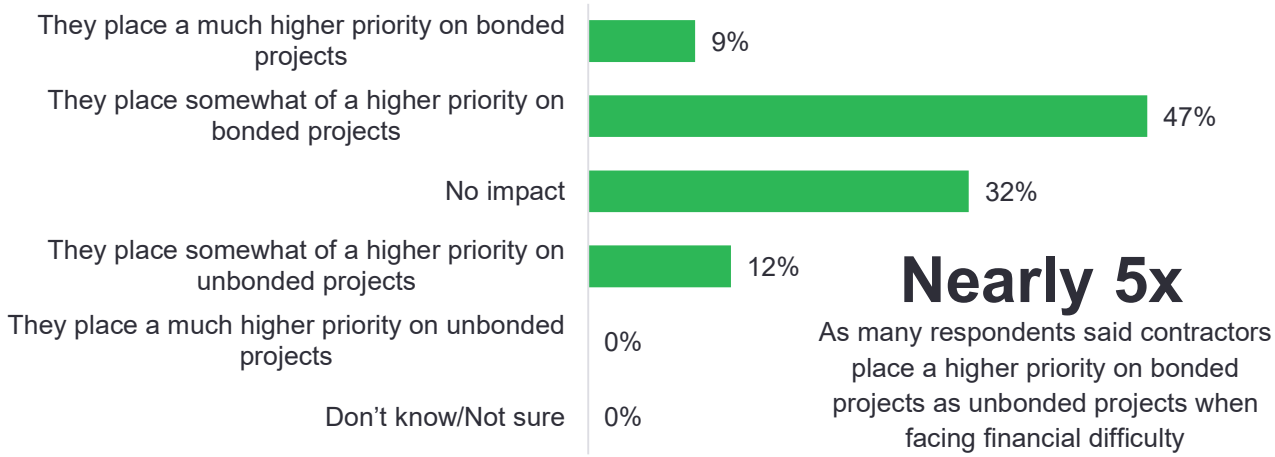


Benefits of Surety Bonding: Prioritization of Bonding Projects

Figure B-8 shows that our survey data supports the following study hypothesis about the benefits of surety bonding on the part of construction owners and developers:

- Contractors prioritize bonded projects if they are experiencing financial difficulties

Figure B-8. Project priority (bonded vs. unbonded projects) of contractors when facing financial difficulties

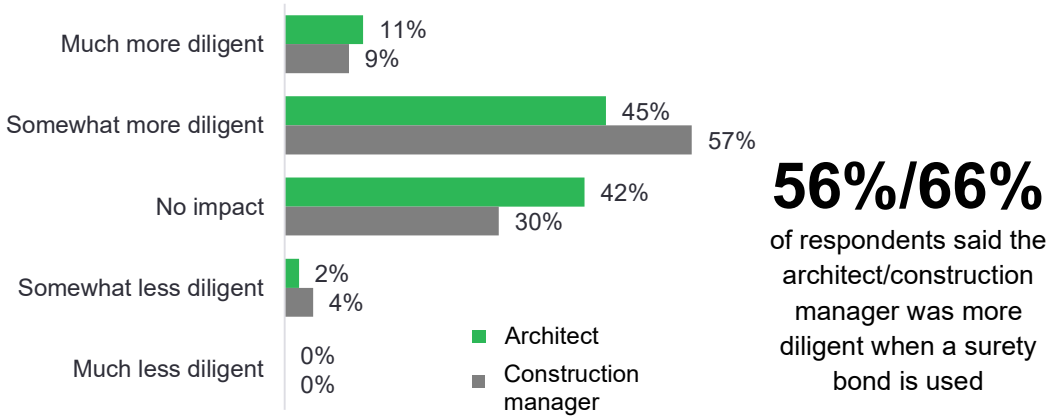


Benefits of Surety Bonding: Financial Information and Diligence

Figures B-9 show that our survey data supports the following study hypotheses about the benefits of surety bonding on the part of construction owners and developers:

- Contractors provide more detailed and frequent financial information when a surety is present than when it is not
- Architect or construction manager is more involved/diligent if a surety company is involved

Figure B-9. Architect or construction manager involvement/diligence (bonded vs. unbonded projects)

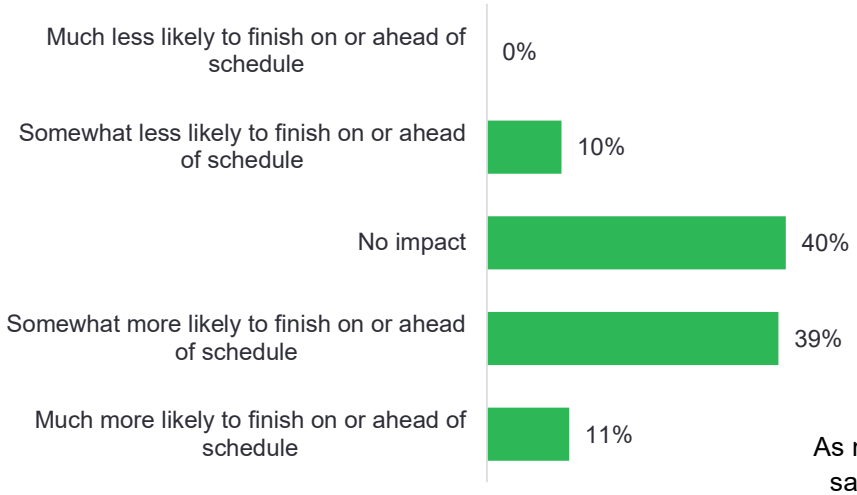


Benefits of Surety Bonding: Completing Work on Schedule

Figures B-10 and Table B-2 show that our survey data supports the following study hypothesis about the perceived benefits of surety bonding on the part of construction owners and developers:

- Construction projects are more likely to continue/complete on schedule when a surety is present

Figure B-10. Impact of surety on likelihood to continue/complete work on schedule



5x

As many respondents said surety bonded projects are more likely to finish on or ahead of schedule as said they are less likely to do so

Table B-2. State of projects with and without bonding

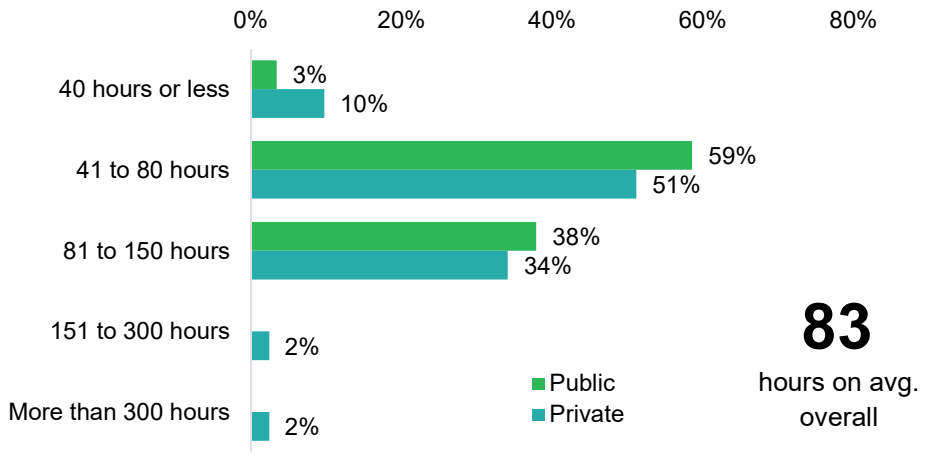
	No Surety bonding	Surety bonding Present
Significantly ahead of schedule	5%	12%
Ahead of schedule	5%	19%
On time	16%	35%
Behind schedule	**73%**	**35%**
Significantly behind of schedule	0%	0%

Benefits of Surety Bonding: Frequency and Rigor of Contractor Pre-qualification

Figure B-11 and the supporting data show that our survey data supports the following study hypotheses about the perceived benefits of surety bonding on the part of construction owners and developers:

- Private Owners and developers spend time pre-qualifying contractors, something that could be performed by a surety company
- Pre-qualification of contractors is more rigorous when a surety is present

Figure B-11. Time spent on pre-qualification



Key reasons for those not doing pre-qualification were cost (47%) and existing relationship (43%)

96% of respondents reported that pre-qualification was performed when a surety bond was required/posted.

VS.

61% of respondents who reported that pre-qualification was performed when a surety bond was NOT required/posted.

Benefits of Surety Bonding: Contractor Oversight

Table B-3 shows that our survey data supports the following study hypotheses about the perceived benefits of surety bonding on the part of construction owners and developers:

- Review of overall contractor financial strength does not substantially occur after project start when a surety is not present

Table B-3. [On your most recent project] How often did the general contractor provide financial updates during construction?

	No Surety bonding	Surety bonding present
Quarterly or more frequently	11%	**23%**
Biannually	30%	**50%**
Once	**59%**	27%
Never	0%	0%
Other	0%	0%

Appendix C. EY Construction Default Interviews

Survey Overview

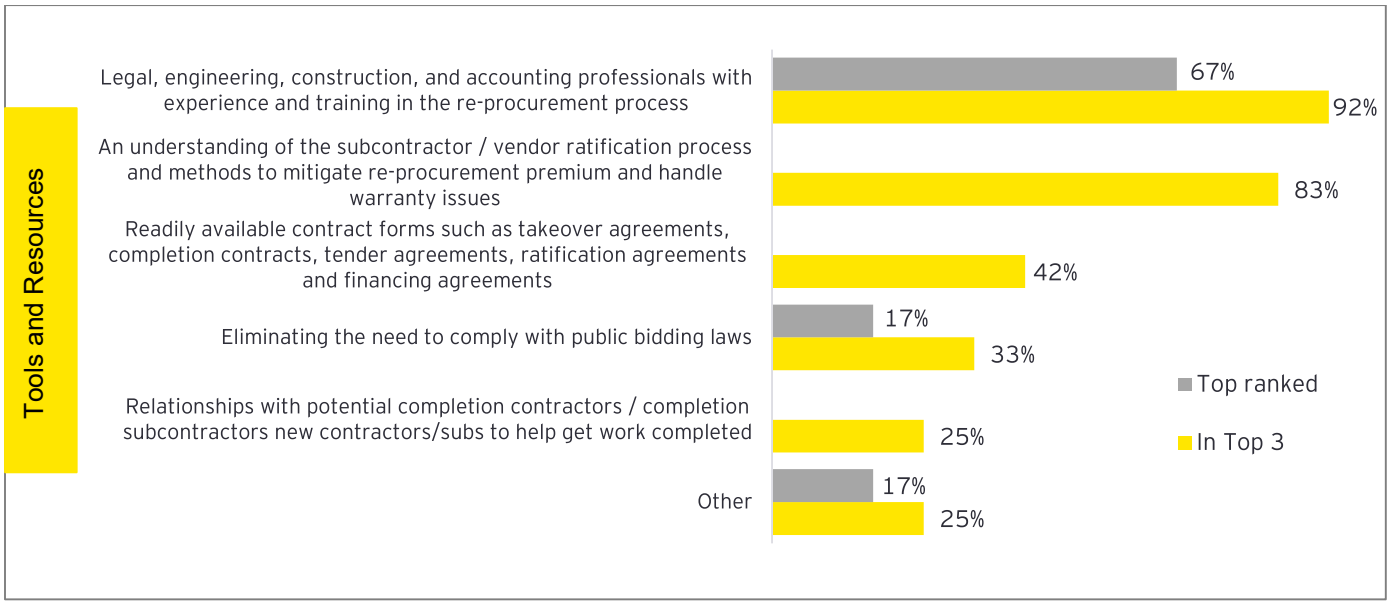
The EY Construction Default Interviews were conducted by EY's Quantitative Economics and Statistics Team (QUEST) and fielded between March 17 and April 6, 2021 to a target audience of 12 construction industry professionals with extensive experience in managing terminations for construction default and project completions on contractor default.

The interviews focused on the following:

- Cost of completion and timeline impact of a termination for default
- Resources and strategies for mitigating the impact of general contractor termination for construction default
- Qualitative factors that affect a default process, such as the size of the project or whether it is a public or private project
- Impact of a surety company on the success of the transition process
- The likelihood of termination for default when a surety is not involved

Results

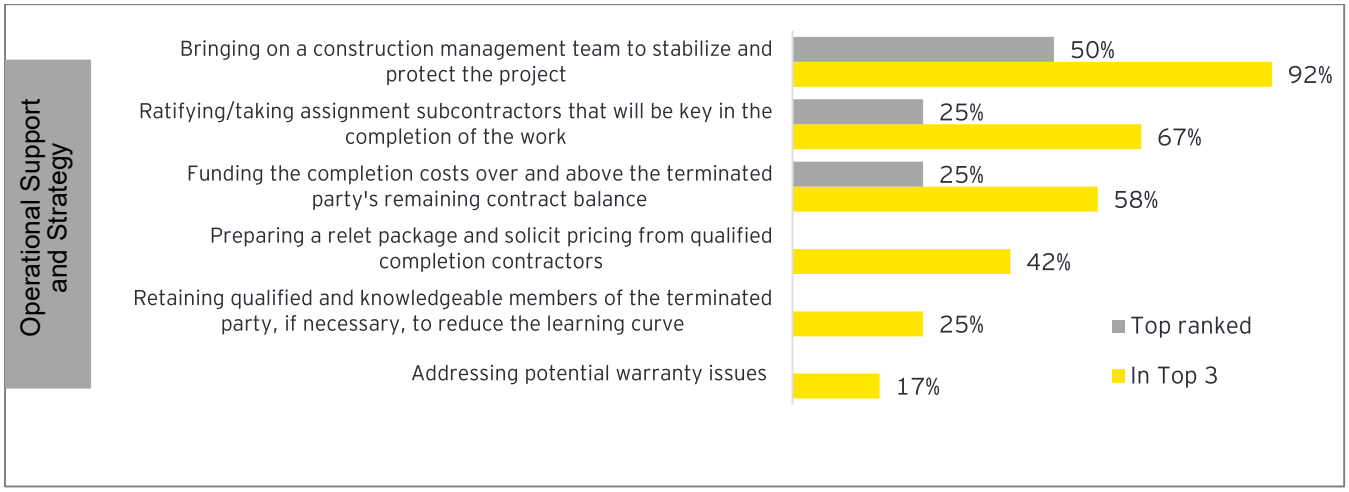
Figure C-1. Key tools and resources in promoting a successful transition from termination for default to project completion/re-procurement



- Respondents were asked to rank each of the above tools and resources in terms of their importance in promoting a successful transition from termination for default. ***Two-thirds*** of respondents indicated that "professionals with experience and training in the re-procurement process" is the most important tool or resource when a general contractor is terminated for default on a construction project and 92% ranked this among their three most important tools and resources from this list.

- An understanding of the subcontractor/vendor ratification process and methods to mitigate re-procurement premium and handle warranty issues was the second most popular resource among respondents – ***83%*** ranked it in their top 3

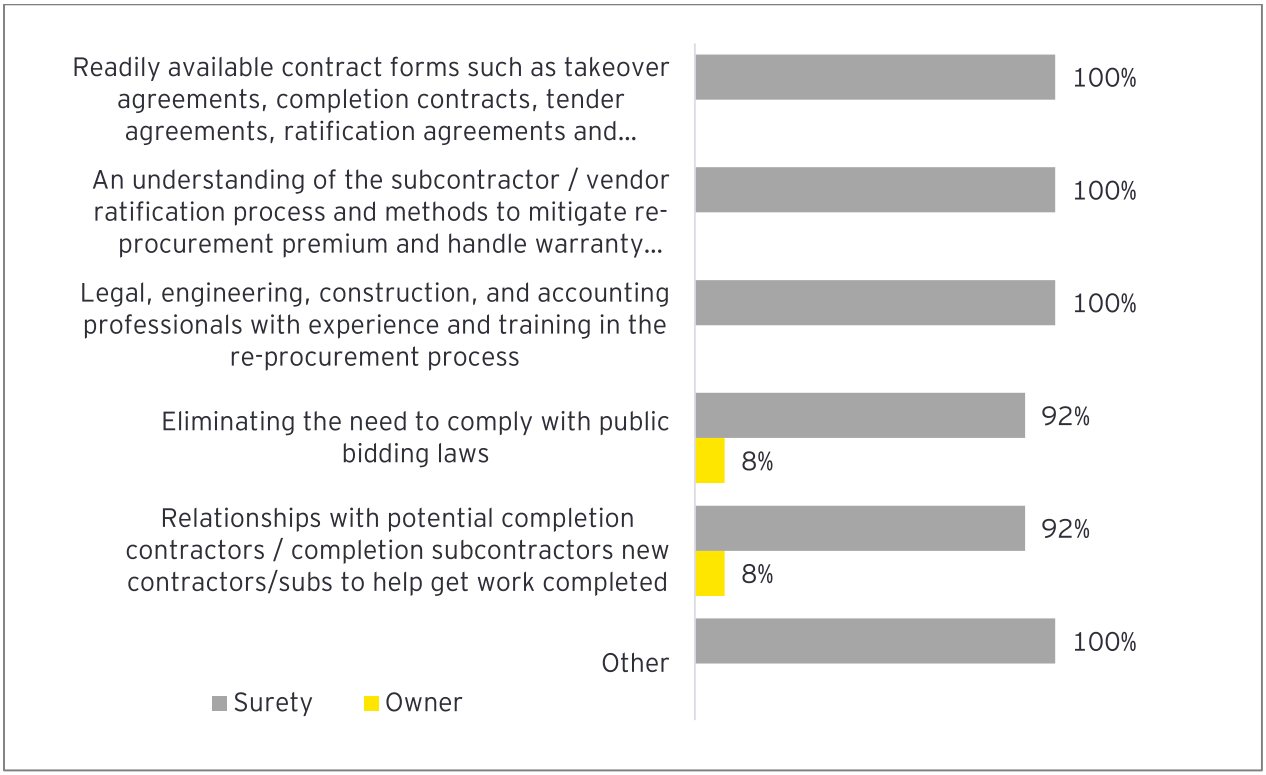
Figure C-2. Operational support and strategies that are most important in promoting a successful transition or re-procurement process



- Half of respondents indicated that bringing on a construction management team was the most important operational strategy to have and over 90% ranked it in their top 3
- Ratifying/taking assignments of subcontractors that will be key in the completion of the work and the funding of the completion costs over the terminated party's remaining contract balance were also selected among the top 3 by a majority of respondents

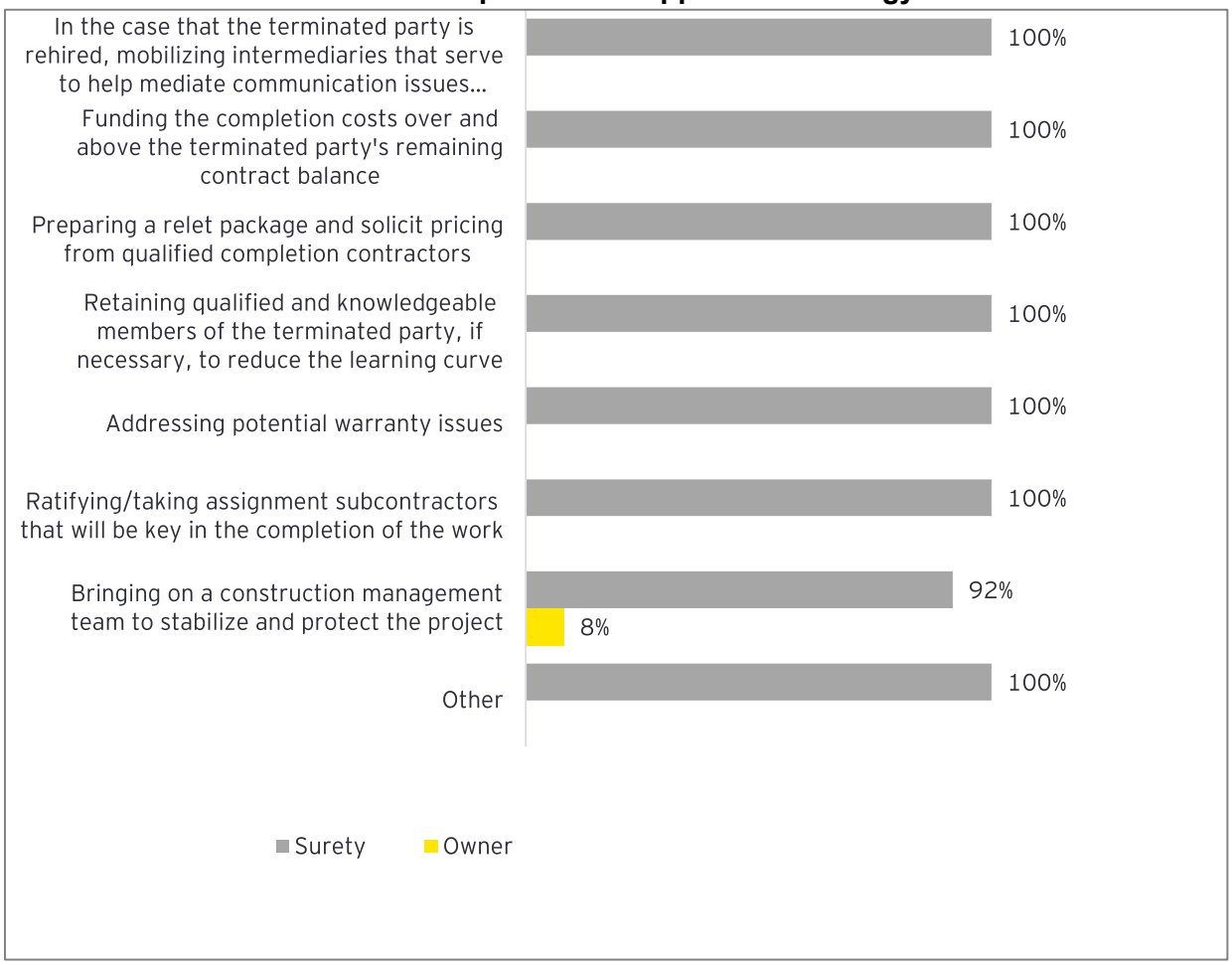
For each of the tools and resources in Figure C-1, we asked study participants whether the construction owner or a surety company typically provides the given resource. Figure C-3 shows the results. In general, participants were unanimous that a surety company is best positioned to do so. The only exceptions were in the case of complying with public bidding laws and having relationships with potential completion contractors – for both of these items, one interviewee felt the owner was the typical and best provider.

Figure C-3. Interview results regarding whether the surety and/or owner typically provides the above tools and resources



The same question was asked for each of the areas of operational strategy and support in Figure C-2, with Figure C-4 displaying the results. Again, interview participants were unanimous that a surety company is best positioned to provide these items. The only exception was in bringing on a construction team to stabilize the project – again one interviewee felt the owner was the typical and best provider of this item.

Figure C-4. Interview results regarding whether the surety and/or owner typically provide the above operational support and strategy



Impact on the costs for transitioning from termination for default to completion/re-procurement

Scenario provided to the respondents: Assume that there is a construction project which is ~ 70% complete at the time a general contractor is terminated for default, and that the owner is not withholding retainage on the terminated contractor and the owner is not holding any earned but unpaid amounts and the termination has already been determined to be proper. What would you expect the impact to be on the "re-let premium", i.e., the costs that you would expect post-termination relative to the unpaid contract balance?

Figure C-5. "Completion Cost Premium" as a Percentage

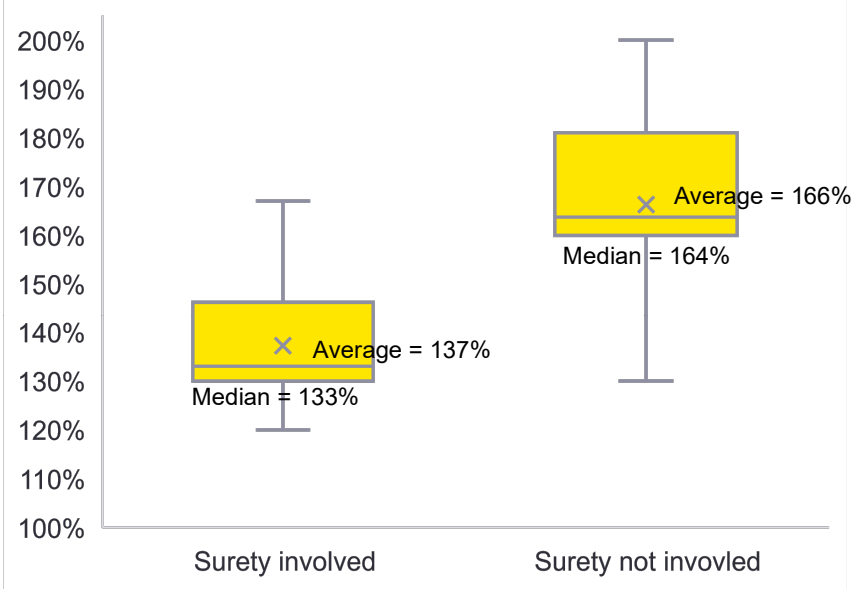


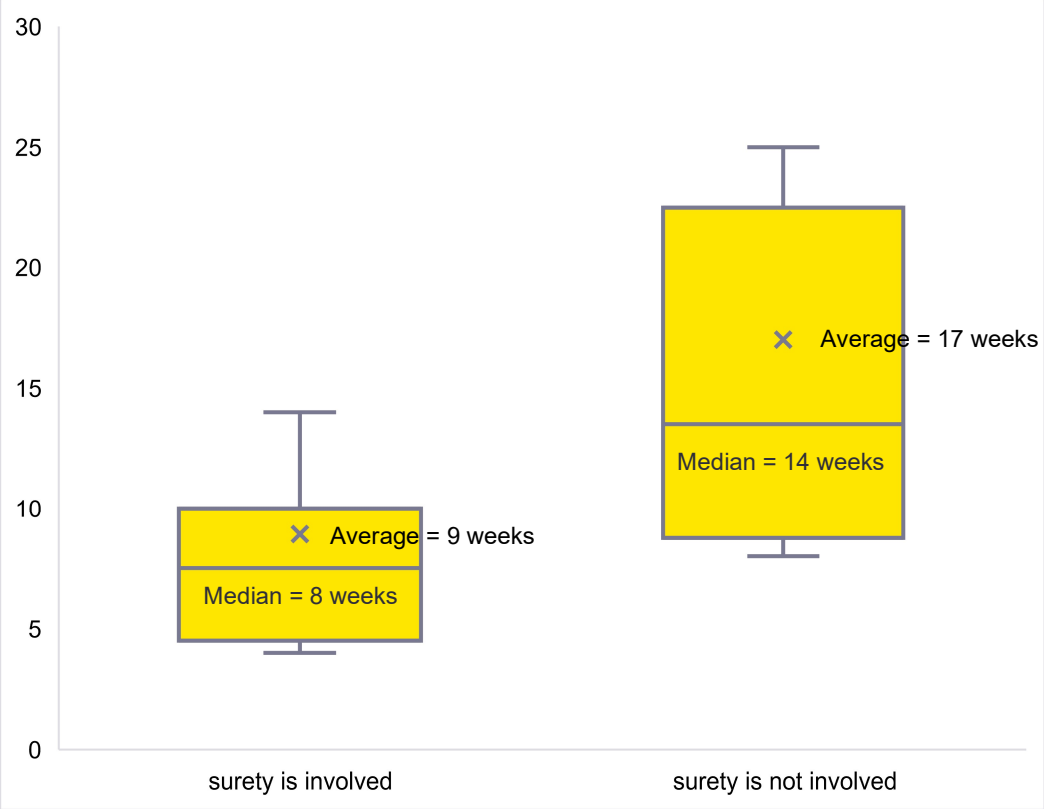
Figure C-6. Average Cost to Complete Construction

- For a $10M project which is ~70% complete and for which a termination has already been determined to be proper, instead of the remaining costs being $3M, on average respondents reported that the completion costs premium will be 137% if a surety was involved and 166% if a surety was not involved. The average ratio of completion costs premium reported by respondents when a surety company is not involved vs. when one is involved was 1.85.
- In dollar terms, if a surety was not involved the extra costs that would be incurred by the owner to complete the project will be on average $1.99M – nearly 20% higher (i.e., $11.99 million total cost without surety bonding versus $10 million total cost with surety bonding).

The Impact on timeline for projects with and without surety

Scenario provided to the respondents: Assume that there is a construction project scheduled to be completed in 18 months and that there are 3 months remaining in the schedule at the time a general contractor is terminated for default. Also, assume that the owner is not withholding retainage on the terminated contractor and the owner is not holding any earned but unpaid amounts. Finally, assume that the termination has already been determined to be proper. What would you expect the impact to be on timeline, relative to the original project schedule?

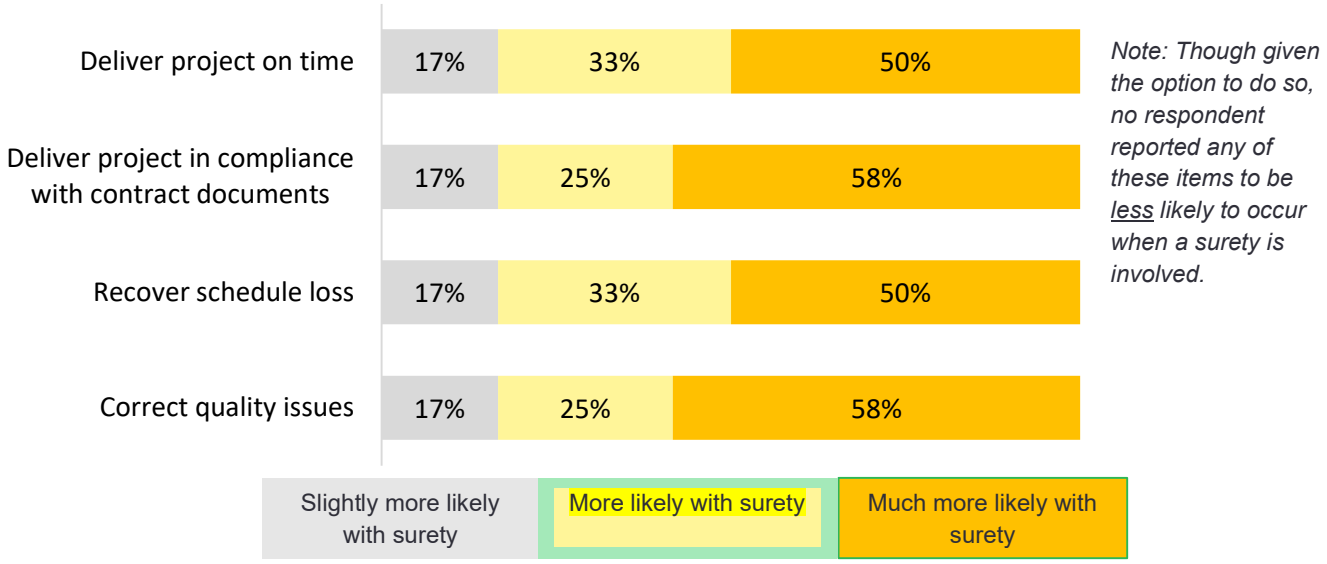
Figure C-7. Timeline for projects with and without surety



For a project that was scheduled to be completed in 18 months and had 3 months remaining in the schedule at the time of completion, respondents indicated that on average it will take 9 weeks to complete if a surety is involved and almost double that (17 weeks) if a surety is not involved.

Qualitative Factors in Default Process

Figure C-8. Likelihood that a general contractor will execute on the following aspects of a construction project when a surety is involved vs. when it is not.

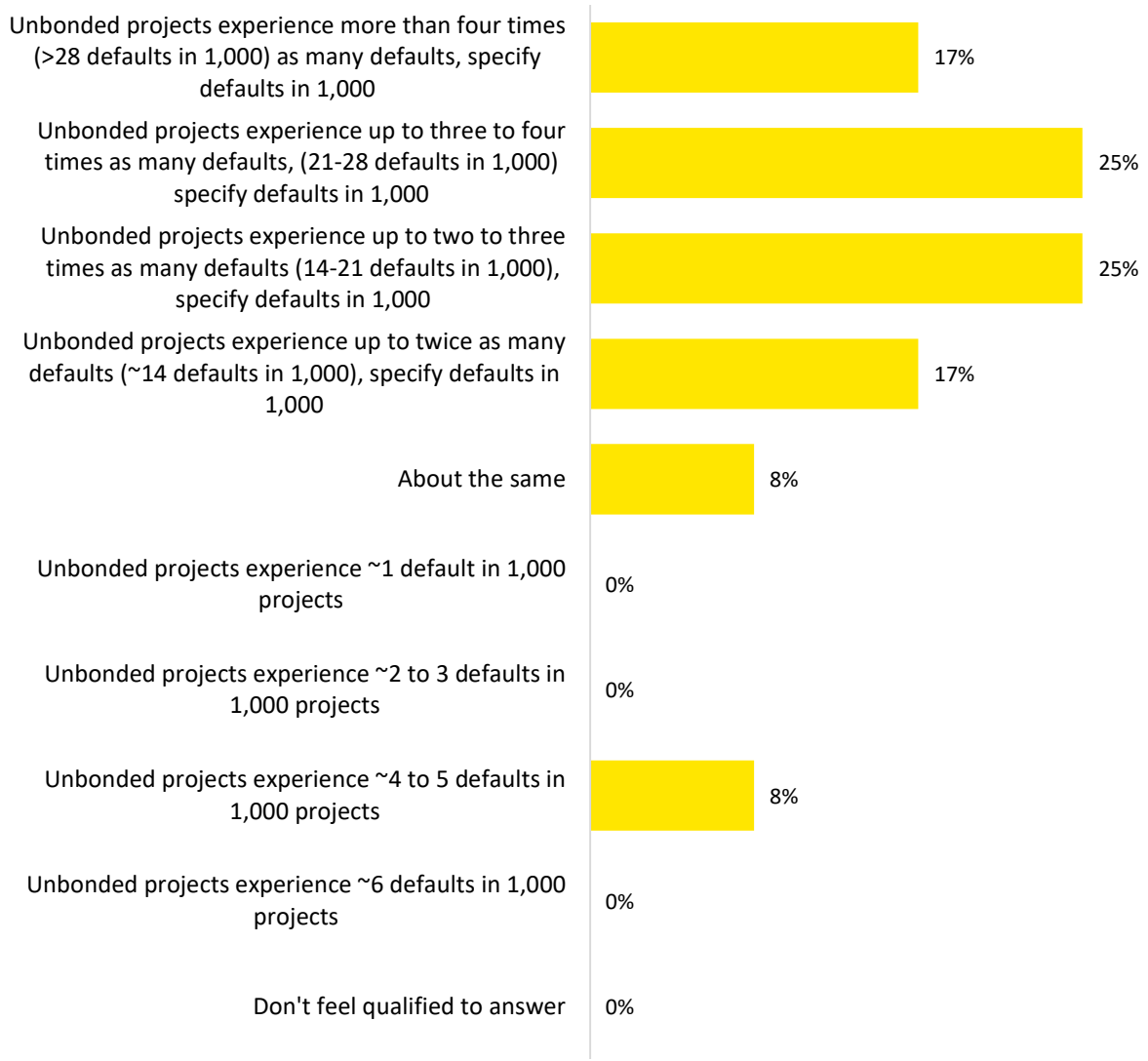


Note: Though given the option to do so, no respondent reported any of these items to be less likely to occur when a surety is involved.

All respondents reported the general contractor was more likely to deliver a project on time and in compliance with the contract documents, recover schedule loss, and correct quality issues when the project owner has payment and performance bonds from the general contractor.

Likelihood of Termination by Default

Figure C-9. Interview Results Regarding Expected Default Rate When Surety is Not Involved (for Unbonded Projects)



- ***84%*** of respondents think that the average rate of termination for default when a surety is not involved is greater than the rate when a surety is involved; two-thirds of respondents said default was at least twice as likely with unbonded projects, with 42% indicating that defaults were three or more times as frequent.

Endnotes

[1] There may be, and perhaps likely is, some self-selection associated with the types of projects in which surety bonding is used. For example, it may be more difficult to attain surety bonding for risker projects. This analysis does not attempt to account for such self-selection.
[2] McIntyre, Marla, "Why do contractors fail," *Construction Business Owner* (2007): 62-65.
[3] Aug. 13, 1894, C. 280, § 1, 28 Stat. 278.
[4] Gallagher, E. G., & Schubert, L. M, (2000), *Why Obligees Buy Bonds*, Chapter 3. *In The law of suretyship*. essay, Tort and Insurance Practice Section, American Bar Association.
[5] The Miller Act of 1935: 40 U.S.C. § 3131
[6] Cohn, J. (2022), Construction Law 101, *Miller Act Payment Bond Claims: The Basics*. American Bar Association.
[7] The illustrative project is for a $35 million public highway construction project. Additional details are provided for this illustrative project in Appendix A.
[8] The cost-savings benefits can be viewed as a benefit that accrues to projects with surety bonding or a cost associated with unbonded projects. For purposes of the modeling and the presentation in this report, they were modeled as costs to unbonded projects.
[9] US Bureau of Labor Statistics, Occupational Employment and Wages Statistics, May 2020.
[10] The interviews of industry experts conducted by EY found that the cost of completion for unbonded projects is 85% higher than for bonded projects. Accordingly, the cost of completion for unbonded projects is scaled up by 85%.
[11] This analysis evaluates the projects over a 20-year life with the implicit assumption that this length of time is a reasonable approximation of projects useful life. Of course, the present value calculations would vary with a different assumption. That said, the conclusions from the portfolio analysis relating to the economic value of surety are not materially impacted by somewhat longer or shorter assumed projects lives.
[12] Two-thirds of the experts on construction project defaults interviewed by EY indicated that the default rate for unbonded projects is at least two times the default rate of bonded projects (see Figure C-9 in Appendix C).
[13] See Canadian Centre for Economic Analysis, "The Economic Value of Surety Bonding in Canada: A networked agent-based economic assessment," August 2017, p. 28.
[14] US Bureau of the Census, Survey of Construction, "Annual Value of Construction Put in Place in the United States, 2000-2020," and US Bureau of the Census, Business Dynamics Statistics Data Tables, 2000-2018. 2019 Business Dynamics Statistics Data Tables (census.gov).
[15] If the default rate for the bonded and unbonded portfolio were the same, e.g.,1:1, the same number of projects could be expected to default in each portfolio. However, the total cost of the unbonded portfolio would still be higher because of improved contractor pricing, other cost-savings benefits, and cost of completion. Under the assumptions used for the base simulation – 1% improved contractor pricing and 85% higher cost of completion for unbonded project that default – the total cost of the unbonded portfolio with the same default rate as the bonded portfolio would be $525 million as compared to the $258 million total cost of the bonded portfolio.
[16] Public K-12 school, private hospital, public underground wastewater pipeline, highway, private apartment building.
[17] US Bureau of Labor Statistics, Occupational Employment and Wages Statistics, May 2020.
[18] See Canadian Centre for Economic Analysis, "The Economic Value of Surety Bonding in Canada: A networked agent-based economic assessment," August 2017, p. 28.
[19] US Bureau of the Census, Survey of Construction, "Annual Value of Construction Put in Place in the United States, 2000-2020," and US Bureau of the Census, Business Dynamics Statistics Data Tables, 2000-2018. 2019 Business Dynamics Statistics Data Tables (census.gov).