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From Financial Compliance to Value Creation: Internal Audit Empowering Procurement Cost Control in Manufacturing

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Abstract: This study explores how internal audit can work together with management accounting to strengthen procurement cost control. Through an embedded case study at Company A, a medium-sized injection molding machine manufacturer, we find that traditional compliance audits, which lack quantitative support from management accounting, often fail to detect deeper procurement risks that erode cost efficiency. By integrating standard costing, activity-based costing (ABC), and budget control into the COSO internal control framework, auditors can effectively identify issues such as related-party transactions, unreasonable pricing, and weak contract enforcement. The process forms a closed loop: risk identification, quantitative measurement, problem remediation, and continuous tracking. The proposed "COSO-Management Accounting" framework provides practitioners in SMEs with a practical approach to conduct cross-functional audits and offers policymakers useful insights for strengthening internal controls and management accounting in smaller firms.

1. Introduction

Manufacturing competition has gotten tougher globally, and supply chains are being reshuffled. In this environment, procurement costs — which typically account for 40% to 60% of total manufacturing expenses — deserve much more attention than they usually get. For small and medium-sized enterprises (SMEs) in China, the reality is sobering: weak control systems, underused management accounting tools, and little cross-departmental cooperation. The predictable result is that procurement becomes a major source of value leakage. Compliance audits that just check boxes on procedures don’t really tell you why costs keep creeping up.

The Institute of Internal Auditors (IIA, 2017) has also pushed for internal audit to become a “strategic partner for value creation.” But on the shop floor, these two functions still operate in separate silos. So we asked a practical question: how can the COSO internal control framework be combined with standard costing and ABC modeling to produce procurement cost-control solutions that actually work for manufacturing SMEs?

2. Literature Review

2.1 Internal Audit and Procurement Management

Internal audit has moved beyond just checking compliance and toward creating value. Auditors now focus on high-risk areas where improvements pay off the most. Existing studies have examined auditor specialization and its impact on firm risk [1], as well as the influence of internal audit reporting relationships on financial statement quality [2]. But when you look at the procurement audit literature, most studies are about fraud detection and supplier risk screening. Few address the practical questions that keep managers up at night: how do you measure the real financial impact of a given risk, and how can audit findings feed directly into cost-control tools? Without the quantitative backbone that management accounting provides, traditional audit methods often miss the deeper structural reasons behind cost leakage.

2.2 Application of Management Accounting Tools in Procurement Cost Control

Management accounting offers several levers for procurement control. Standard costing gives teams a benchmark to spot deviations. ABC helps trace indirect costs to individual customized products. Budgetary control sets spending limits before purchase orders are signed. In theory, these tools should dramatically reduce procurement waste. In practice, SMEs tend to use them sporadically — if at all — and even when the tools are in place, they rarely connect with the audit cycle. Cost data sits in one corner, audit findings in another, and very little cross-pollination happens. Case studies in other contexts, such as Italian universities, also highlight the gap between internal audit design and actual risk detection [3].

2.3 Research on the Integration of Audit and Management Accounting

A growing number of studies point to the benefits of combining audit and management accounting functions. Smith et al. [4] found that introducing ABC into procurement audits can reduce pricing deviations by 15%. Wang Bing's [5] large-sample study showed that when internal audit taps into management accounting information systems, cost efficiency improves noticeably. Domestic research has also explored non-punitive regulation and internal audit behavior [4], as well as broader theoretical frontiers and practice trends. These findings are encouraging, but they leave important gaps. First, none offers a systematic design anchored in the COSO framework. Second, the SME setting — where resource constraints are severe — gets little attention. Third, the precise pathway from tool integration to risk control and then to measurable value creation remains unmapped.

3. The "COSO - Management Accounting" Integrated Analysis Framework

3.1 Procurement Audit Analysis Model Based on the Integrated Framework

Drawing on existing literature, we developed a "COSO–Management Accounting" integrated framework for procurement auditing. The framework connects the five elements of the COSO internal control system with relevant management accounting tools to create a practical working model.

In the Control Environment component, emphasis is placed on improving organizational structure and clarifying responsibilities, allowing management accounting staff to participate in key pricing reviews. For Risk Assessment, we use cost behavior analysis and construct a risk matrix

weighted by procurement spend share (60%) and price volatility (40%) to identify high-risk materials. In Control Activities, standard costing, activity-based costing (ABC), and budgetary control are applied to build standard cost libraries and set deviation alerts. The Information & Communication element focuses on integrating ERP cost modules for real-time price comparison against standards and market benchmarks. Finally, Monitoring relies on supplier scorecards and monthly variance analysis for ongoing oversight.

This integrated approach shifts traditional compliance-focused auditing into a closed-loop process of risk identification, quantitative measurement, remediation, and continuous improvement. It offers manufacturing SMEs a clear and actionable path for strengthening procurement cost control.

3.2 Why We Chose This Case

We selected Company A, founded in 2010, as our case subject. It is a medium-sized injection molding machine manufacturer headquartered in China, with 2023 revenue of 860 million RMB, annual procurement spending of roughly 290 million RMB, and 250 employees. Three reasons guided this choice:

1) Typical industry characteristics: More than half of Company A's procurement spend goes to customized parts and tooling, while commodity metals make up the rest. This mix mirrors the struggle many SMEs face: customized products are notoriously hard to cost accurately, and commodity prices swing wildly.

2) Common control problems: Before our audit intervention, procurement, warehousing, and production planning all reported to a single manager — a textbook conflict-of-interest setup. Non-standard parts had no scientific pricing model, and contract penalties were rarely enforced. These are exactly the kinds of dysfunctions we see repeatedly in SMEs.

3) Data accessibility: Our team had already worked with Company A on an earlier audit optimization project. We were present from initial risk diagnosis through program design, implementation, and final evaluation. This long-term involvement gave us access to internal documents, ERP transaction logs, and interview transcripts — enough sources to triangulate.

3.3 How We Collected Data

Our data gathering spanned 2022 to 2024 and used four channels:

1) Document analysis: We reviewed procurement policies, 187 supplier contracts, 36 cost analysis reports, 8 internal audit reports, and 5 rectification plans.

2) Semi-structured interviews: We spoke with 15 key people — from the General Manager to procurement officers, cost accountants, internal auditors, R&D managers, and supplier management staff. We asked how they perceived procurement risks, what management accounting tools they were actually using, where they thought audit collaboration could help, and what obstacles had blocked previous rectification efforts.

3) Data analysis: We extracted 12,368 procurement transactions from the ERP system, covering 1,247 different materials, and cleaned the data using Python for subsequent analysis.

4) Direct observation: We attended 12 meetings in person — pricing negotiations, supplier performance reviews, and rectification follow-ups — and took detailed field notes.

4. Audit Practice: A Closed Loop of Risk Governance Driven by Management Accounting Tools

We organized our audit work around a simple four-step cycle: spot the risks, quantify them, fix

what's broken, and keep monitoring. Below is how we used management accounting tools at each step.

4.1 Risk Identification: Building a Risk Profile Based on Cost Behavior Analysis

We combined qualitative judgment with quantitative analysis to pinpoint three core risks.

1) Qualitative identification: On the qualitative side, the red flags were obvious once we looked closely: procurement and payment authority sat with the same people, no one had built pricing models for non-standard parts, and the ERP modules for procurement, inventory, and finance did not talk to each other.

2) Quantitative identification: On the quantitative side, we sorted materials by cost behavior into fixed, variable, and mixed buckets. Then we built a risk matrix that weighted procurement spend share (60%) against price volatility (40%). Three hotspots emerged: related-party transactions, non-standard part pricing, and contract compliance.

4.2 Organizational Structure Optimization: Before and After

Company A tackled the concentration-of-authority problem head-on with three structural moves:

1) Split concentrated authority: The Production-Sales Coordination Manager role was eliminated. Procurement, Warehousing, and Production Planning now report to different executives, ensuring that no single person handles requisition, execution, and receipt.

2) Embed controls: Management accounting staff were given clear procurement responsibilities — not just booking numbers, but also reviewing pricing, evaluating supplier performance, and monitoring budgets.

3) Establish collaboration: A cross-departmental task force, chaired by the head of management accounting, was set up to drive audit rectifications across departmental boundaries.

4.3 Audit Practices in High-Risk Areas and How We Used Management Accounting Tools

4.3.1 Related-Party Transaction Risk: Dual Verification via Cost Anomaly Monitoring and Related-Party Mapping

1) Audit method: We ran two tracks in parallel. Track one: management accounting built price bands for each material from historical data and market indices. Track two: the audit team scraped external corporate databases to trace hidden ties between suppliers and Company A employees.

2) What we found: The dual check uncovered 3.5 million RMB in procurement (1.21% of annual spend) flowing to Company B, a firm controlled by the procurement manager's relative. Prices averaged 12% above market. One electronic component, for instance, cost 1,800 RMB per unit when comparable items traded at 1,580 RMB. Quality data were equally troubling: Company B's failure rate stood at 8.7%, and 300,000 RMB in contract penalties had never been enforced. The total damage came to 420,000 RMB.

3) Fixes we put in place: A declaration and recusal regime was introduced. Every procurement officer and manager must file an annual disclosure of related-party interests; management accounting and HR jointly review these filings. The ERP system now flashes an alert and routes the purchase order to a second approver whenever a quoted price drifts 5% above the standard range.

4.3.2 Non-Standard Part Pricing Risk: Using Standard Cost Modeling and Regression Analysis Together

1) Audit method: We built an ABC cost model for 523 non-standard parts, breaking each down

into material cost, processing fee, and scrap allowance. For parts tied to commodity prices, we added regression models to flag deviations from market trends.

2) Model construction & findings: ABC cost model: Material costs came from R&D's BOM and current market prices; processing fees were split into five tiers from 100 to 500 RMB per hour; the scrap rate was pinned at 10.2% using three years of shop-floor data. When we compared actual purchase prices against the model, 62.3% of parts were off by more than 10%. The cumulative overpayment: 1.1 million RMB per year. Regression analysis: The regression equation for casting prices came out as $Y = 210 + 0.85X$ ($R^2 = 0.72$, $p < 0.01$), with X being the rebar price index. Prices adjusted two months behind the market, and that lag alone cost 800,000 RMB in 2023.

3) Fixes: A three-way pricing protocol was established. R&D hands over BOMs and process specs; management accounting turns them into standard costs via the ABC model; procurement then uses those benchmarks in supplier negotiations. Any quote more than 5% above standard must be signed off by senior management. Purchase price variances against standard costs are now fed directly into the annual scorecard of every procurement officer.

4.3.3 Contract and Delivery Risk: Closed-Loop Governance via Budget Control and Performance Linkage

1) Audit method: We combined budget execution analysis with contract clause verification — reviewed penalty clauses in 187 supplier contracts and compared accounts payable data with contract terms to see how often penalties were actually enforced.

2) What we found: Between 2022 and mid-2024, contractual penalties for late deliveries and quality defects added up to 9.5 million RMB. Yet only 3.5 million was actually withheld — a 37.9% enforcement rate. But that wasn't the whole story. Delayed shipments forced production rescheduling that cost 680,000 RMB, and extra inventory holding added another 450,000 RMB. Indirect losses alone reached 1.13 million RMB.

3) Fixes: Contract templates were rewritten with teeth: delivery rate must hit 95%, quality pass rate 98%. Supplier scores directly affect order allocation (40% weight), payment speed (30%), and future price negotiation room (30%). Management accounting now sets monthly cash quotas by supplier score. Underperformers see payment terms stretch from 30 to 90 days — a tangible financial nudge.

4.4 Procurement Cost Control Process Optimization: Embedding Tools and Closing the Loop

With the integrated framework in place, Company A overhauled its procurement workflow. Every stage now specifies which management accounting tool to use, who owns it.

1) Requisition stage: Production Planning submits requests -> Management accounting does cost behavior analysis -> Internal audit does sample review

2) Risk assessment stage: Management accounting builds risk matrix and runs standard cost models for non-standard parts -> Procurement screens suppliers, collecting >=3 quotes for high-risk items

3) Pricing negotiation stage: Tripartite collaboration: R&D provides BOM -> Management accounting provides standard cost -> Procurement negotiates -> Audit supervision: attend high-risk negotiations, verify outcomes against standard costs

4) Contract signing stage: Management accounting vets penalty clauses -> Procurement enters contract into ERP, auto-linked to performance records -> System control blocks unapproved suppliers and over-budget purchases automatically

5) Execution & delivery stage: Warehousing does material inspection -> syncs to ERP -> Management accounting tracks delivery in real time; penalties auto-calculate when deadlines slip ->

Internal audit verifies inspection records vs. ERP data

6) Payment settlement stage: Management accounting verifies purchase price vs. standard cost and performance vs. payment quota -> Finance processes payment -> Audit supervision sample-checks payment vouchers vs. contract terms

7) Continuous monitoring stage: Management accounting does monthly variance analysis and supplier performance scoring -> Internal audit does quarterly audits and annual assessment -> Rectification: adjust cost models/process parameters based on results

Key highlights of the process optimization: Embedded tool design (Each stage names the tool to be used); Dual control points (Management accounting crunches the numbers; internal audit watches from the sidelines); System automation support (Hard-coded ERP rules — auto-blocks and penalty triggers — remove the temptation to bend procedures manually).

5. Conclusion and Implications

5.1 What We Learned

Our embedded study at Company A produced two main takeaways:

1) Checklist-style compliance audits are not enough. They catch procedural lapses but miss the deeper cost risks that only quantitative tools can surface. Bringing management accounting inside the COSO loop changes that equation.

2) The framework closes the loop. It tightens the control environment, quantifies risk, embeds tools in day-to-day controls, links information systems, and keeps monitoring alive — not as isolated initiatives, but as connected gears.

5.2 Theoretical Implications

1) It enriches audit value creation theory. Our case shows that internal audit doesn't have to stay a "cost center." When paired with management accounting quantification, audit oversight becomes a genuine value driver — a dual-engine model that few SMEs have exploited so far.

2) It expands the application scenarios of the COSO framework. By mapping each COSO component onto concrete management accounting tools, the study offers SMEs a way to overcome the "implementation difficulty" that has long plagued COSO adoption in smaller firms [6][7].

3) It deepens understanding of audit-management accounting integration. The real integration glue is what we call "quantitative synergy." Management accounting brings the numbers; audit brings independence. Either alone is weaker; together they create a feedback loop that neither discipline achieves on its own.

5.3 Practical and Policy Implications

5.3.1 Implications for Management Accounting Practice in SMEs

1) Role redefinition: Management accountants need to step out of the back office. Cost modeling and budgetary control should become standard inputs to audit planning, not afterthoughts prepared when auditors come knocking.

2) Tool focus: Tool selection matters. Standard costing, ABC modeling, and ERP data integration should be the first priorities — they directly target the two biggest pain points: non-standard part pricing and commodity price swings.

3) Process institutionalization: Collaboration must be hard-wired, not voluntary. Tripartite pricing committees, automatic price alerts, and performance-linked payment terms turn good

intentions into enforceable routines.

5.3.2 Implications for Policy Making

The Ministry of Finance should make audit-management accounting synergy a visible theme in its promotion campaigns and weave cost modeling and data auditing into SME training curricula. Regulators should publish practical guides that show SMEs exactly how to bolt management accounting tools onto the COSO framework — step-by-step, with templates.

References

[1] Huang H W, Rose-Green E, Lee C C. The association between auditor industry specialization and firm-specific stock risk[J]. Journal of Accounting, Auditing & Finance, 2012, 27(2): 233-263.

[2] Trotman A J, Duncan K R. An empirical examination of the effects of internal audit reporting relationships on financial statement quality[J]. Journal of Accounting Literature, 2018, 41: 1-15.

[3] Arena M, Arnaboldi M, Azzone G. Internal audit in Italian universities: A case study[J]. Managerial Auditing Journal, 2006, 21(3): 275-292.

[4] Smith J, Johnson M, Lee K. Activity-based costing in procurement auditing: Evidence from manufacturing firms[J]. Journal of Management Accounting Research, 2020, 32(3): 45-62.

[5] Wang Bing. Research on the synergistic effect of internal audit and management accounting information system [J]. Accounting Research, 2021 (5): 88-96

[6] Wang Bing, Liu Lixia, Zheng Guojian. Internal Audit: Theoretical Research Frontiers and Practical Development Trends [J]. Accounting Research, 2020 (2): 175-192

[7] Zhang Jie, Sun Jian, Wang Xue. Non punitive regulation and internal audit behavior: empirical evidence from Chinese listed companies [J]. Nankai Management Review, 2021, 24 (3): 116-127